EFFECTS OF QUALITY OF CARE INFORMATION ON CONSUMER CHOICE OF PHYSICIANS AND HOSPITALS

Karen Glanz, Ph.D., M.P.H.
School of Public Health
University of Minnesota
Minneapolis, Minnesota

Joel Rudd, Ph.D.
School of Family and Consumer Resources
University of Arizona
Tuscon, Arizona

This paper was prepared by outside contractors for the OTA assessment The Quality of Medical Care: Information for Consumers. The paper does not necessarily reflect the analytic findings of OTA, the assessment's advisory panel, or the Technology Assessment Board.

J952-79

EFFECTS OF QUALITY OF CARE INFORMATION ON CONSUMER CHOICE OF PHYSICIANS AND HOSPITALS

Karen Glanz, Ph.D., M.P.H.
Visiting Scholar
Division of Epidemiology
School of Public Health
University of Minnesota
Minneapolis, Minnesota

Joel Rudd, Ph.D.
Associate Professor
School of Family and Consumer Resources
University of Arizona
Tucson, Arizona

This work was performed for and submitted to the Health Program, Office of Technology Assessment, U.S. Congress.

CONTENTS

HEADING	PAGE
Introduction	1
Conceptual Framework: Consumer Information Processing	3
Goals for Providing Quality of Care Information	14
Audience Characteristics	23
Characteristics of Quality of Care Information	32
Sources of Health Information	37
Descriptive Studies: Reasons for Choosing and Changing Health Care Providers	39
Effects of Information on Health-Related Behavior	53
Responses to Information Within Medical Care	56
Information and Compliance	56
Increasing Patient Information-Seeking and Participation	57
Informed Consent	60
Responses to Information Regarding Choice of Healthy Products and Health Services	63
Consumer Use of Nutrition Information	63
Consumer Information Programs: Quality and Cost of Care	69
Responses to Information About When to Seek Care: Self-Care Education	74
Discussion: Non-Use Benefits of Information	79
Summary	80
Policy Implications	82
References	84

LIST OF FIGURES AND TABLES

FIGURE PAGE

Figure 1. Elements of Consumer Information Processing (CIP) Framework 5

Figure 2. Conceptual Framework: Review of Areas Related to Effects of Information on Health-Related Behavior . . . 55

TABLE PAGE

Table 1. Types of Quality of Care Information 33

Table 2. Surveys of Reasons for Choice of Health Services 40–41

Table 3. Surveys of "Doctor-Shopping" Behavior 47

Table 4. Consumer Information Programs: Quality and Cost of Care . 70

Table 5. Recent Self-Care Education Experiments 75

EFFECTS OF QUALITY OF CARE INFORMATION ON CONSUMER CHOICE OF PHYSICIANS AND HOSPITALS

INTRODUCTION

The increasingly competitive health care market has strengthened the need for patients to make informed choices about the quality and costs of their health care. In order to consider quality of care when choosing among health care providers, people must either have information about quality of care available in a form that they can understand or be able to acquire such information easily. Until recently, few types of information on the quality of care provided by hospitals, physicians, and other providers were available to consumers. At present, quality of care information is increasingly being generated by government agencies, consumer organizations, the popular press, and health care organizations. The intentions for providing such information are of three types: to alert consumers about disciplinary actions such as malpractice judgments (i.e., public interest/disclosure), to enable consumers to make wise decisions regarding choice of health care (i.e., consumer education), and to promote the use of a given provider or organization (i.e., advertising).

Limited evidence exists on whether health information changes health behavior generally, and more specifically whether information on quality of care affects consumer choice of physicians and hospitals. This paper addresses this question and related issues concerning the likely effects of information about the quality of care.

At present, empirical study of the question of whether the availability of quality of care information (QCI) influences consumers' choices of physicians or hospitals is insufficient to conclude that such information does or does not have a significant impact. However, the answer is most likely not "yes" or "no," but rather, how much effect can be attributed to what kind of information for what audiences, and under what circumstances? To examine these issues, we will describe an applicable conceptual framework for this analysis, discuss recent trends in the availability of QCI, and review existing empirical evidence about health care consumers and the characteristics and effects of information.

For clues regarding what can be reasonably expected, we will analyze recent studies of consumer responses to health information and health care information from areas related to QCI and the choice of providers. Before doing so, we present definitions of four key terms used in this review: consumers, providers, quality of care information, and health information.

In this paper, consumers are the individuals or groups (e.g., families) who make decisions to use health services, and to choose a specific physician or hospital as the provider of care.

Providers of health care discussed in this paper are limited to physicians and hospitals. While quality of care information may affect use of non-physician providers or alternative health care settings, consideration of these other providers is beyond the scope of this paper.

Quality of care information (QCI) is information about the presence/absence, or worth (from poor to excellent) of different dimensions of health

care — technical, interpersonal, and amenities of care. QCI involves comparison with a standard of acceptable quality or with the facilities or performance of other health care providers.

Health information is a general class of information regarding health: the causes and consequences of illness, the effects of medical treatments, and the value of health services. "Health information" subsumes information related to both personal health and health care services.

CONCEPTUAL FRAMEWORK: CONSUMER INFORMATION PROCESSING

Theoretical frameworks from the fields of consumer behavior, education, marketing, persuasive communications, and behavioral psychology each contribute to an understanding of the potential for QCI to influence consumer choice of physicians and hospitals. One or more of these perspectives may be applicable to an analysis of various types of information and steps in the chain of information acquisition, processing, and use for health care decision making.

We have chosen the Consumer Information Processing (CIP) perspective as an overarching conceptual framework for analyzing the question of the effects of quality of care information (QCI) on consumer choice of physicians and hospitals. In this section we present a summary of key elements of CIP models, and their general application to the understanding of consumer behavior. In subsequent sections, we will draw upon elements of CIP to analyze existing empirical literature and relevant issues which have not yet been subjected to scientific study.

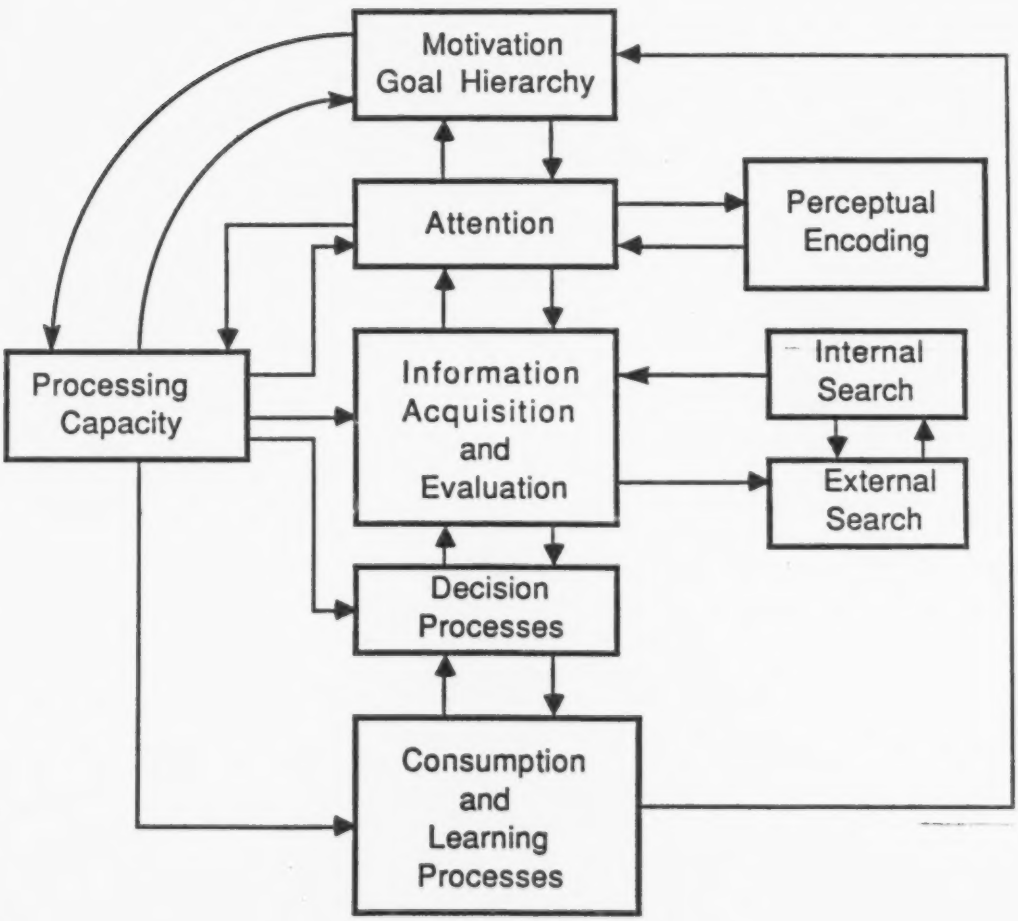
Consumer Information Processing (CIP)

The information processing approach to consumer decision making is not a unified theory per se, but rather is a conceptual framework to guide researchers, planners, and policy makers in understanding consumer behavior. CIP draws on theories of cognition, decision making, and behavior change. Scholars identified with the consumer information processing perspective have generated a number of models of CIP (e.g., Bettman, 1979; Howard and Sheth, 1969; Markin, 1974). These models vary in detail, but all posit that consumer decision making is essentially a multistage process in which information is acquired and processed (search), a decision is made and acted upon (choice and purchase), and the quality of the decision is evaluated (use). While some critics have pointed out that the consumer information processing approach is overly rationalistic (e.g., Belk, 1987), it remains the best single broadly applicable theory-based perspective on consumer decision making.

The most thorough conceptual and empirical exposition of consumer behavior from a CIP perspective is found in the work of Bettman (1979). The basic elements of consumer choice proposed in Bettman's model are: consumer information processing capacity, motivation, attention and perception, information acquisition and evaluation, memory, decision rules and processes, and consumption and learning (see Figure 1). As depicted in Figure 1, the CIP framework assumes a continuous and reciprocal interaction among the elements, resulting in feedback loops in the decision making process. When the CIP framework is used as a basis for research, processes within a given element and/or relationships between a subset of selected elements are tested empirically. We how briefly discuss each of the elements.

Figure 1

CONSUMER INFORMATION PROCESSING MODEL OF CHOICE *



*(Excerpted from Bettman, 1979)

Consumer information processing capacity. The fact that consumer information processing capacity is limited affects several of the other elements of consumer choice, most notably attention and perception, information acquisition and processing, and decision rules and processes. Consumers are often deterred from engaging in extended information processing because processing capacity is limited, and because processing information requires expenditure of finite resources (primarily effort and time) (Bettman, 1979).

Motivation. In the consumer information processing perspective, motivation is viewed as a set of mechanisms for controlling movement from a beginning state (such as recognition of a need) to a desired state (such as purchase or use of a product). One mechanism Bettman proposes to characterize this process is a hierarchy of goals and subgoals. Goals and subgoals are viewed as continually being constructed and reconstructed, as motivation levels change and environmental factors (including new information) intervene. Further, such continual construction and reconstruction provides consumers with the opportunity to decide how much information processing capacity, time, and other resources to devote to the task of making a choice (Bettman, 1979).

Attention and perception. In Bettman's model, attention and perceptual encoding refer to those activities used by consumers to attend to a commercial stimulus and to interpret what they perceive. Attention may be voluntary, i.e., relevant to current goals, or involuntary, i.e., not directly related to current goals (Bettman, 1979; Kahneman, 1973).

Information acquisition and evaluation. The central processes in Bettman's (1979) model are information acquisition and evaluation. These processes, clearly affected by motivation, attention, and perception, are at the core of consumer decision making. Information is acquired both through internal search (from memory) and external search (from the environment). Bettman suggests that in the normal course of things, consumers first engage in internal search and use what they find there to guide the degree and direction of external information search. Information derived from internal search in general is based on past experience and attention to advertising (Bettman, 1979).

Lack of sufficient information from an internal search may trigger an external search. Because information acquisition and processing involve expenditure of resources, consumers perform what Russo (1987) has described as an informal cost-benefit analysis prior to acquiring and processing information in a choice task. New information will be acquired and processed only if the consumer determines that the potential benefits outweigh the expected costs of acquisition and processing.

Information processing is viewed as an active process in which consumers generate cognitive responses to information from either internal or external sources. Consumers make judgments about the "quality" or veracity of information they have acquired and processed. These judgments may result in a perceived need for additional external information acquisition. The direction of external information search may be influenced by factors such as degree of prior knowledge held by consumers about the product class and the relative

availability of information (Bettman, 1979). Further, the degree of external information search is often influenced by the consumer's internal cost-benefit analysis and by environmental factors such as the availability of the information, the difficulty of the choice task, and time pressure (Bettman, 1979; Russo, 1987). In addition, individual differences such as information processing ability (which is often a function of educational level) and consumer concern with optimality of choice may affect the amount of external search.

Consumers frequently use a "satisficing" rather than an "optimizing" criterion in determining when to discontinue information search after locating a satisfactory alternative, rather than proceeding with a search until the best alternative is located. Application of such a satisficing criterion is consistent with what Haines (1974) called the "principle of information processing parsimony." Simply (parsimoniously) stated, this principle proposes that consumers seek to process as little information as possible in order to make rational decisions quickly.

Decision rules and processes. In Bettman's (1979) model, decision processes are the heuristics or rules of thumb that consumers develop and use to help them select from among alternatives. Heuristics enable consumers to make choices among alternatives within the constraints of limited processing capacity. Heuristics, which may be called up from memory or constructed on the spot, provide consumers with a way to simplify and shorten the choice task, and perhaps even to routinize it. An example of a simple heuristic is "select the

cheapest (or closest, most familiar, most accessible) alternative." Bettman describes many more complicated heuristics, most of which are placed into one of two basic information processing forms: (1) those that involve choice by processing brands (each alternative is evaluated as a whole), and (2) choice by processing attributes (all alternatives are evaluated on a single attribute, then on a second attribute, etc.).

Clearly, the nature of the information environment affects the ease of applying either of these two basic processing forms. For example, package label information in the supermarket, automobile sticker information, and appliance energy-efficiency rating label information are arranged by brand, "forcing" consumers to use choice by processing specific brands. On the other hand, when information is summarized in tabular form for several brands, such as in some point-of-purchase displays (e.g., Russo, et al., 1986) or in Consumer Reports magazine, the ease-of-processing difference between the two processing forms disappears.

Consumption and learning. The consumption and learning processes component of Bettman's model provides both the raison d'etre for the stages already discussed, and the major feedback mechanism in consumer decision making (Bettman, 1979). This component focuses on the temporal nature of consumer choice, emphasizing the effect of intraindividual feedback from prior decisions and consumption behaviors on current choice. The notion that decision and consumption outcomes are evaluated is basic to this process, and this evaluation process results in cumulative consumer learning. Bettman notes that

consumers often develop attributions of causality when evaluating choice outcomes (see, for example, Kelley, 1971). That is, consumers evaluate the outcome (positive, negative, or neutral) and then attempt to assign a cause to that outcome (e.g., something about the product, my use of it, the conditions under which it was used, etc.).

One mechanism by which past choice outcomes affect consumer choice is through changes in heuristics. Positive, expected outcomes may result in simplification of the heuristic used; negative, unexpected outcomes may result in its elaboration (Bettman, 1979). Thus, when consumers are satisfied with the results of a previous choice, they are likely to take a simplistic view of future choice decisions in the same product category. When consumers are not satisfied, or experiences undesirable outcomes, they are likely to introduce new decision rules into the heuristic used to make related choices in the future.

Effective consumer information use. The application of CIP models for studying and analyzing the effects of information on choice is best accomplished in the context of the interaction between consumers and the information environment. Russo (1987) has extended the CIP framework and proposed a two-dimensional model of barriers to effective use of information by consumers. The two primary types of barriers are those residing in (1) the information environment and (2) the consumers of that information environment.

The first environmental barrier is usually a lack of available information (Russo, 1987). For example, useful information on the quality of local

services, such as hospital and physician services, is often difficult for consumers to obtain. Lack of information may reflect the costs associated with gathering and disseminating the information, or may occur because sellers actively discourage such information provision. Disagreement among experts about the appropriate type and form of information is another deterrent to making information available. In some cases, information is considered proprietary and sold as a profit-making product by information brokers.

The second environmental barrier is provision of the wrong kind of information (Russo, 1987). Information that is too technical or too complicated may be of little use to consumers. Similarly, information on trivial or irrelevant aspects of products is likely to be ignored in consumer decision making. Thus, consumer perceptions of what <u>is</u> relevant and useful for making choice decisions are critical to the effects of information.

In Russo's (1987) view, there are three consumer-based barriers to effective information. These are (1) insufficient knowledge, (2) inadequate effort, and (3) information processing limitations. Consumers frequently do not have sufficient knowledge to put available information to good use. Given the range of products that consumers purchase, it is inevitable that many of the products will be ones about which consumers have insufficient knowledge. Consumers are often unwilling or unable to expend the time and effort necessary to acquire and process useful information. This may be especially problematic since expenditure of resources is one way consumers can make up for environmental and knowledge deficits in information. Information processing limitations refer to the finite capacity of short term memory (central processing) that can be overcome through increased resource expenditures or altered through higher educational attainment.

Building effective consumer information environments. If we accept Russo's (1987) view that consumers perform an informal cost-benefit analysis prior to acquiring and processing information, there are two possible approaches to building effective consumer information environments: (1) increase the benefits of information acquisition and use, or (2) decrease costs of information acquisition and use. The former might be accomplished by supplying genuinely new information on products for which there is currently insufficient information. This is most successful if the information can be delivered in an appealing or entertaining way. The latter approach might be accomplished by generating information formats that reduce processing costs for consumers, or by reducing the monetary costs of information generation via market mechanisms.

Both Russo (1977) and Bettman (1979) argue that processability of information is the critical variable in building effective consumer information environments. Processability is affected by (1) how information is presented, (2) the types of processing used by consumers, and (3) the types of choice tasks consumers face (Bettman, 1979). For example, in brand choice situations in which consumers have little prior experience, consumers are apt to prefer information presented in a format encouraging choice by attribute processing. When consumers are familiar with a product and have limited time to make individual decisions, as is often the case with grocery shopping, consumers may prefer an information format designed for choice by brand processing. Unless information is presented in a format consistent with consumers' preferred type of processing, consumers may opt to avoid information acquisition and processing tasks in their decision making.

The following sections of this paper will address the health care climate as an information environment, and current empirical knowledge and its implications for predicting the effects of QCI on health care consumers' decisions. Specifically, we will draw upon CIP to illuminate what is known about:

*goals for providing Quality of Care Information (QCI),

*characteristics of consumer audiences,

*characteristics of Quality of Care Information (QCI),

*sources of health information,

*descriptive studies of provider choice, and

*studies of information provision in areas related to QCI.

GOALS FOR PROVIDING QUALITY OF CARE INFORMATION (QCI)

After decades of little information, information on the quality of health care is becoming more widely available to consumers from sources such as the government and consumer groups, and through channels including books and print and broadcast media (Komaroff, 1985). In the introduction to this paper, we identified three types of goals for providing such information: public disclosure, consumer education, and advertising. In this section we review recent trends and research findings related to each of these types of goals, and analyze their utility in terms of the CIP elements involved in information acquisition and consumer decision processes. The specific foci of our analysis are: the degree of external information search required (Bettman, 1979); barriers to effective consumer information use in the information environment (Russo, 1987); and information processing forms (Bettman, 1979).

Public Disclosure

Public disclosure alerts consumers about disciplinary actions such as malpractice judgments, revocation of medical licenses, and so on. Legislation such as the Freedom of Information Law in New York state (Haddad, 1987), and the Health Care Quality Improvement Act of 1986 (99th Congress, 1986) are opening the doors for disclosure of quality information to health professionals and the public. Public disclosure of indicators of undesirable quality has the goal of directing consumers away from specific providers of potentially harmful medical care.

A great deal of effort is required for consumers to obtain information about health care providers who have been the targets of malpractice judgments or institutional and professional disciplinary actions. Even though the aforementioned legislation represents progress toward increasing the availability of information, the amount of external search and general lack of available information create barriers to consumer use of public disclosure information on health care quality.

Use of public disclosure QCI involves information processing by brands, i.e., avoidance of a specific physician or hospital. If consumers can and do obtain information regarding the providers or hospitals they are considering, they should be able to process the information with little additional effort.

Thus, in order for public disclosure to affect consumer choice, the information must be accessible; the consumer must expend the necessary effort to seek out the information; and the information must be relevant and applicable to the choice decision at hand. As indicated above, little information aimed at public disclosure is currently available to the lay public. Those consumers most likely to obtain such information would be high "information seekers" — who are usually people with higher than average income and educational levels, and frequent users of print media such as newspapers and magazines (Thorelli & Engledow, 1980). Further, it appears that information about malpractice claims and judgments represents only a fraction of the total number of episodes of iatrogenic illness or injury. Very few people who believe they experience iatrogenic illness or injury ever discuss their experiences with attorneys (Meyers, 1987).

In brief, at present public disclosure of QCI probably influences a small number of highly motivated, well educated consumers who pursue and find information about poor quality or potentially harmful medical care among the options they are considering. Initiatives to improve the utility of public disclosure QCI would include: encouraging better reporting of suspected iatrogenic illness and injury to authoritative sources, increasing the availability and ease of consumer access to such information, and conducting aggressive, sustained publicity campaigns to educate consumers about how and where to obtain this information.

Consumer Education

Consumer education, or public interest information, is typically directed at improving decision making regarding choice of health providers on either a general or a provider-specific level. Over the past fifteen years, the volume of available information on how and where to obtain high quality medical care has grown rapidly. The first "generation" of such information consisted of books on how to determine when to seek professional medical help and how to choose and use physicians and hospitals (Sehnert and Eisenberg, 1975; Vickery and Fries, 1976; Belsky and Gross, 1975; LeMaitre, 1979). Subsequent books advised consumers and health professionals about how to provide and interpret useful consumer health information (Madnick, 1980; Cornacchia and Barrett, 1980; Rees and Young, 1981). Within the past five years, consumer action groups have offered a variety of publications with information on how to evaluate and select health care providers (e.g., People's Medical Society;

Rovner, 1986). Most recently, newspapers and magazines are publishing articles providing consumers with guidance in selecting quality medical care, both at a general level (Pekkanen, 1987a) and for specific physicians (Pekkanen, 1987b) and hospitals (Hamilton, 1987; Consumer Checkbook, 1987).

Many signs suggest that employers and the public will increasingly have information about indicators of quality of care available to them (Mosteller, 1987). Spurred by the increasing concern over costs of health care, employers and public agencies involved in financing health care have begun to introduce consumer information programs about the price and quality of care as part of their cost containment efforts. Health care coalitions and consortia of insurance companies are providing employers, unions, and other client organizations with information on facilities, staffing, and treatment variations in various hospitals (Colburn, 1984; McCosker, 1987).

Increased availability of information has often reflected pressure from consumer groups and the media. In 1981, Ralph Nader's Public Health Research Group, a consumer advocacy organization, published a study of hospital specific mortality rates in Maryland for the 12 most common surgical procedures. The Maryland Hospital Association reacted to the Nader study by initiating an ongoing effort to collect, analyze, and interpret quality of care data for hospitals throughout the state (Summers, 1987). Also, the first release of hospital mortality data by HCFA in 1986 was preceded by an apparent leak to the media, which precipitated a reporter's appeal under the Freedom of Information Act (FOIA) and led to the release of the data. Although most of the health industry decried the release of those data, some consumer advocates reacted by

applauding the action and suggesting that consumers should be educated to use these data in their health care choices (Inlander, 1987).

These trends suggest that, for consumer education purposes, barriers to obtaining QCI have been decreasing. Indeed, many sources of general information about selection of medical care have recently become available in the popular press or have been distributed by employers and consumer groups. However, specific QCI information, particularly about the quality of local hospital and physician services, is usually difficult for consumers to obtain.

Even if specific QCI information becomes readily available, a second environmental barrier may deter consumers. That barrier is provision of the wrong kind of information, especially information that is too technical or complicated for most consumers to understand.

If general information about interpreting quality indicator data must be applied to provider-specific information for effective consumer use, the information processing limitations of many consumers will present yet another barrier. More effort is required to process information about attributes (i.e., abstract information). Thus, unless consumer education QCI is offered with provider-specific information and instructions for its interpretation, only consumers who are willing to expend the necessary time and effort to process this information will ultimately use it. A few current consumer education efforts provide indicators of the quality of care along with the identities of individual physicians and hospitals (Levin, 1987; Consumer Checkbook, 1987).

If consumers have an insufficient fund of knowledge to independently evaluate a given class of products, it is easier for them to process brand information (Bettman, 1979). This is analogous to the provision of brand-specific information vs. generic consumer information regarding purchase of consumer products that are described by technical scientific criteria. Experimental evidence on the effects of point of purchase nutrition information to promote healthy eating patterns suggests that consumers do use labelling or shelf information to choose between brands (Leifeld, 1983; Levy et al., 1989). However, no effects of nutrition information about broad categories of foods (attributes) resulted from a large scale grocery store intervention program (Ernst et al., 1986).

In summary, QCI can achieve the goals of consumer education by reducing environmental information barriers and tailoring information processing forms to the type of decision required. Specifically, QCI for consumer education should be made widely and readily available; and should present information that is not too technical or complicated for most consumers to use. It should include physician- and/or hospital-specific information, and offer explanations to help interpret the meaning of quality indicators.

Advertising

Advertising seeks to influence consumer decisions toward use of certain specific health care providers. In recent years, the alleged oversupply of health care professionals and services has led providers to view themselves as forced to advertise, and not just offer, their services. Health care providers

are awakening to a new competitive reality, and have increased their allocations of resources for marketing activities (MacStravic, 1977, 1985). Experts have noted that we will begin to see more advertising campaigns including information about outcomes of care such as mortality (Rundle, 1987).

Advertising in the health professions is a relatively recent phenomenon, and little is known about its effect on consumer behavior (Folland, 1985). However, studies have found that prices for eyeglasses and optometric services were lower in states which permitted advertisements, without adversely affecting quality (Benham, 1972; Begun and Feldman, 1981; Greenberg, 1984).

Among the characteristics shared by institutions engaged in the marketing of medical services, two are particularly important. First, because health services cannot, in general, be transported or stored, they are difficult to mass market while maintaining uniform quality (Uhl and Upah, 1983). Second, the services marketed often involve some degree of intangibility, i.e., they lack physical properties (Van Doren and Smith, 1987; Levitt, 1981). For example, the degree to which a hospital's staff are respected in the community and the degree to which a physician is affable are intangibles. The inherent difficulties in objectively evaluating such intangible characteristics may be a problem for consumers and present an opportunity for marketers. These concerns also apply to services other than medical care: services are often intangible in nature and "customized" for each consumer. These characteristics of services may lead consumers to rely heavily on either the service provider's reputation or word-of-mouth recommendations from friends (Swartz and Stephens, 1984).

Advertisements are complex stimuli, and are neither merely a means of information transmission or persuasion (Wilkie, 1986). However, because health care providers have increased their use of advertising (Van Doren and

Smith, 1987; Jensen, 1987), it is important to examine the quality and type of information used in health care advertising. Folland (1985) suggests that advertising will probably be slow to develop as an approach to central dissemination of quality of care information. Rather, he and other experts (e.g., Greenberg, 1986) propose that advertising will focus on amenities of care instead of either quality or cost. Also, present American Hospital Association (AHA) guidelines admonish against making direct comparisons with other hospitals (AHA, 1977).

From a consumer information processing (CIP) perspective, advertising requires little external information search. Basic principles of advertising stress the importance of involving consumers in the advertisement and keeping people's interest (Wilkie, 1986); thus, the communication of quality of care information through advertising tends to present little in the way of environmental barriers to consumer information use. Also, the information processing form for advertising involves brand choice, which presents the consumer with a low-effort decision (either accept or reject a specific provider).

The increasing emergence of advertising as a readily accessible source of information for consumers of health care raises the important issue of truth in advertising. Given the importance of advertising to health care practitioners (i.e., marketplace survival) and to consumers (i.e., their health status, possibly life or death), careful consideration of the nature and use of health care advertising is extremely important. This is even more critical as health care providers begin to make quality of care claims in their advertisements (Hauser, 1986; Rundle, 1987). Because advertisers in general have a poor record of substantiating their claims, there is ample reason for consumers to be wary of such claims in health care advertising (Woodside, 1977).

In view of Folland (1985) and Greenberg's (1986) predictions that most health care advertising will not contain substantive information on the quality of care, it behooves policy makers to explore strategies to encourage such information provision. One possibility for the future is the creation and enforcement of standards for the use of quality of care data in health care advertising, similar to gasoline mileage standards required by the Environmental Protection Agency (EPA) (Hauser, 1986).

Clearly, the increasing use of advertising by health care providers offers a potentially effective means of communication of QCI. Because of the nature of advertising, little consumer effort is needed to acquire and process the informational content of advertisements. But since the goal of providing QCI in advertising is to promote use of a given provider or organization, steps must be taken to assure the integrity, balance, and informational content of ads. The public sector and professional associations need to identify ways to promote and monitor truth in advertising. Also, the creation and enforcement of standards for the use of quality of care data would make important contributions to such efforts.

This section has provided a review of recent trends and research findings related to three types of goals for providing quality of care information (QCI): public disclosure, consumer education, and advertising. In a later section of this paper, we will examine in greater depth the effects of consumer education on health behavior and use of health care. We next turn to a discussion of characteristics of the audience for QCI.

AUDIENCE CHARACTERISTICS

The audience is a primary concern in evaluating the potential and demonstrated effects of available consumer information about the quality of care. In this section, we examine characteristics of the potential recipients of quality of care information who make choices about physician or hospital use. Our analysis of audience characteristics focuses on two elements of the CIP model: consumer processing capacity, and motivation (Bettman, 1979). We will examine these elements in the context of Russo's (1987) three major consumer-based barriers to effective information use: (1) inadequate effort, (2) insufficient knowledge, and (3) information processing limitations.

A first consideration in exploring the effects of information on the decision to use health care, involves the question of who is the actual "purchaser" or consumer, i.e., who is the decision maker of interest? Employers, physicians, and consumers and their families each play important roles in the choice and purchase of physician and hospital services.

Employers. Increasingly, companies or employers are the "buyers of health care" for their employees (Bachman et al., 1987). Because employers assume the major burden of paying for health care, they are interested in securing high quality care at the lowest price. Over 90 percent of hospital bills are paid by insurers, companies, and public sources, and not by individuals (Fielding, 1984). However, employers' choices are most influential with respect to the choice of financial arrangements and organizational options (e.g., HMOs, PPOs) rather than in actual selection of a specific doctor or hospital.

Physicians. Physicians are important purchasing agents for patients (and their families), and their influence is increasing. A summary of recent research suggests that only one-third of consumers select hospitals themselves; one-third decide together with their physician; and one-third have the physician choose the hospital for them (Jensen, 1987). A national consumer survey suggests that the choice of hospitals is being increasingly left to physicians: 36.9% of consumers in 1984 left the hospital selection up to their physicians, and in 1985 the figure jumped to 47.3% (Powills, 1986).

Consumers and their families. While choices may be limited with respect to hospital care and constrained by third party payment plans and physicians' hospital privileges, individual consumers and their families make most of the decisions about which physician will provide their health care. Of all nonhospital physician visits, it appears that at least half are made by people who know in advance that they will need to see a physician, and thus could be reasonably well informed. These visits include pediatric care, general checkups, pre- and postnatal care, and visits for chronic conditions (Pauly, 1982). Most health care decision makers within families are females; women choose physicians and hospitals that family members will use as much as 68.5% of the time (Jensen, 1987; Powills, 1987).

It is important to recognize that the utility of quality of care information (QCI) may be limited by restrictions on the range of consumer choice in a given situation. As Donabedian (1981) has pointed out, the principle of free choice in use of health services has complex ramifications for consumer behavior. While free choice provides the optimal environment for

"matching" patients with physicians and hospitals, most consumer choices occur in a partly restricted context. This situation is likely to persist, in part because restrictions such as physician referral and limitations imposed by third party payers may ultimately improve care (Donabedian, 1981).

Consumerism in Medical Care

Russo (1987) has proposed that inadequate effort to acquire and process information, as a reflection of consumer motivation, can be a significant consumer-based barrier to effective use of information. The likelihood that consumers will seek, and ultimately use, information about the quality of care, depends in part on their propensity to adopt an active, consumer stance in health care decisions. Consumer assertiveness in medicine is inconsistent with traditional authority relationships between physicians and patients (Haug & Lavin, 1979); it implies "buyer's challenge of seller's claims" (Haug & Lavin, 1983) and willingness to seek out information from a variety of sources (Hibbard & Weeks, 1987a). Medical care has traditionally been characterized by professional control of information (Freidson, 1970) and marked by a disproportionate supplier influence on the demand for services (Wennberg et al., 1982).

The consumer movement of the past two decades has brought increased consumer involvement in health planning (Christensen, 1976; Metsch and Veney, 1976). In medical care settings, many health professionals have adopted a vocabulary change whereby they refer to relationships between "providers" and "consumers" rather than a "doctor-patient relationship" (Reeder, 1972).

Consumer expectations of the quality of hospital care in the U.S. have increased each year since 1984, according to a national consumer survey (Inguanzo and Damier, 1987). National and regional surveys in the U.S. substantiate the widespread willingness to challenge physician authority (Haug and Lavin, 1983), particularly among younger and better educated consumers. In addition, consumers have, in some instances, organized to promote increased availability of information about health care services and to educate consumers in its use (Hamilton, 1982; Rodale, 1983). However, the extent to which the kind of social action which spurred consumer participation in health planning can be translated into individual actions in the choice of health care providers remains uncertain.

Limited evidence indicates that a sizable minority of individuals are actively involved in the choice of their health care. A recent survey of 1,833 state government employees and Medicare Part B enrollees found that less than 40 percent of respondents engaged in consumer behaviors of information seeking (37%), exercising independent judgment in following physician advice (34%), and cost sensitivity about health care decisions (39%) (Hibbard & Weeks, 1987a). Of these three indicators of consumer orientation that the investigators used, only "cost sensitivity" can be considered part of prepurchase decision making. Information seeking was defined as looking up health information, or reading health columns or articles.

A survey of the top twenty U.S. metropolitan areas revealed that 35 percent of consumers reported that they were very active in seeking out information and evaluating health care providers prior to using their services (Bennett and

Campbell, 1986). These consumers sought information because they believed that differences existed between providers. An additional 13 percent of consumers stated that they only go through the information seeking and evaluation process when faced with an unfamiliar array of health care providers (Bennett and Campbell, 1986).

How extensive is consumer acquisition and processing of health care information? Research on a sample of 229 middle and upper class families in Arkansas by Stewart et al. (1985) indicated that depth of information acquisition was not great. When asked about how they chose a primary care provider, 82 percent reported using only one source of information, and 66 percent considered either no alternatives or only one other alternative provider. Thus, consumers carried out only a limited information search prior to selecting a health care practitioner.

Based on the studies described here, it appears that an "active consumer orientation" reflected in expenditure of effort to seek information and evaluate alternative sources of care is not yet the norm in the United States. The barrier of low motivation can be estimated to affect 60 to 80 percent of health care consumers.

There is some indication that consumerism will increase as the public learns that QCI is available. Public officials and health professionals believe that the demand for information about the quality of care is increasing (Wyden, 1986; Mechanic, 1979; Wennberg et al., 1982). While little is known about specific consumer response to the recent availability of a limited range

of QCI, studies of patients' desires for health information suggest that there is a great and often unfulfilled interest in information regarding health and medical care. Several investigations have demonstrated that patients are generally dissatisfied with the amount of information they receive from their physicians (Waitzkin and Stoeckle, 1976). Studies over the past thirty years have repeatedly found that patients want much more information about their diagnosis and treatment than they receive (Pratt et al., 1957; Reader et al., 1957; Ley and Spelman, 1967; Cartwright, 1967; Pauly et al., 1984). While these findings are not necessarily directly applicable to consumer interest in QCI, they suggest that it may be possible to promote active consumerism when quality of care information becomes readily available.

Consumer Knowledge and Sophistication

Even if consumers desire information about the quality of health care, they will be unlikely to use it correctly unless they understand it. Research on the sophistication of consumers about medical care, and the extent to which they are able to process information for health care choices, provides mixed evidence on this matter. A majority of Americans feel they are not well informed about good medical care (General Mills, 1979). Fewer than 30 percent feel they are well informed, and 80 percent of those who consider themselves well informed are of middle to upper socioeconomic status (General Mills, 1979). In contrast, findings from a recent national consumer survey found that most

consumers had accurate knowledge about one aspect of medical care -- 79.3 percent of respondents correctly disagreed that "all hospitals offer about the same quality of care" (Inguanzo and Harju, 1985b). The 1985 survey findings were consistent with the earlier study results with respect to correlates of knowledgeability; those with higher incomes and more education were the most discriminating (Inguanzo and Harju, 1985b).

Health care providers make decisions about whether to provide information to patients based on their own views of patients' levels of knowledge. Several studies comparing objective measures of patient knowledge with physician impressions reported similar findings: Physicians appear to routinely underestimate their patients' levels of knowledge about technical medical matters (Pratt et al., 1957; McKinlay, 1975; Pauly et al., 1984). Thus, the withholding of scientific information as "too difficult to understand" seems unwarranted.

While measures of health knowledge regarding illnesses are common in health behavior studies (such as those cited above), little research has examined consumer knowledgeability about the medical care system. As part of a larger study of health services, Newhouse et al. (1981) administered a 10-item "sophistication" questionnaire to 4,976 non-elderly persons. Their findings suggest that consumers are knowledgeable about some matters and uninformed about others. Fewer than 50 percent of the respondents answered three questions correctly; those questions addressed hospital privileges, license renewals, and specialty boards. Educational level was significantly correlated with an

8-item summary scale of sophistication, and more sophisticated consumers tended to view health services and physicians less favorably and more critically, i.e., to have a more active "consumer orientation." The investigators established the reliability and criterion validity of the 8-item scale, but its content validity may be questioned. It is likely that more than eight items are needed to effectively represent the "universe" of concepts related to medical sophistication. Further development of measurement tools and assessment of various groups will aid our understanding of consumers' ability to use information on the quality of care.

The findings of Newhouse et al. (1981) suggest that consumer sophistication and knowledgeability go hand in hand with consumer motivation which is likely to enhance effective use of quality of care information. A study by Bunker and Brown (1974) explored the relationship of knowledgeability to appropriate use of medical care. They studied physicians and other professional groups in an effort to learn whether the alleged overuse of surgical services is due to a lack of consumer knowledge. Assuming that physicians possess accurate knowledge of when to use health services, they compared use of common surgical services by physicians with use by lawyers, ministers, and businessmen. The findings indicated that operation rates for physicians and their spouses were as high as or higher than rates for the other groups, and that overall rates for the professional groups were about 25 to 30 percent higher than for the country as a whole. They concluded that the physician-patient as an informed consumer places a high value on surgery, and that this may overshadow knowledge

about the necessity for surgical intervention (Bunker and Brown, 1974). Hence, sophistication or knowledgeability alone clearly does not assure appropriate use of medical care.

In summary, the principal audience for quality of care information consists of consumers and their family members, though choices may be constrained by employers and third party payers. A sizable minority of consumers are motivated to independently seek and use information to guide their choice of physicians. Consumer knowledgeability of the health care system is positively correlated with socioeconomic status and educational level (and thus with information processing capacity), and with a tendency to view physicians more critically, which is one aspect of consumer orientation. However, knowledgeability alone does not guarantee appropriate use of medical care and other attitudes and values may mediate decisions about health services.

Without strong promotional efforts to encourage medical consumerism in the general public, the effects of QCI on consumer choice of health care will be limited to the minority who are already highly motivated. More research on the level of knowledge about the health care system in various population segments is needed. For some consumers, improved knowledge about extant differences in the quality of medical care may act as a stimulus to increased effort to acquire and process quality of care information.

CHARACTERISTICS OF QUALITY OF CARE INFORMATION (QCI)

In this section we examine the characteristics of quality of care information (QCI), and analyze those features which are likely to bear on the consumer decision making process. In doing so, we will describe various types of QCI which are or might become available to consumers. We will then assess environmental barriers to effective consumer information use which are rooted in characteristics of QCI, and factors related to the extent of external information search for QCI.

Table 1 presents a summary of various types of quality of care information that might influence consumers' choice of physicians and hospitals. This table is intended to provide examples of the kinds of information being considered in this review, rather than as an exhaustive list of types of information. The categorization of types of information follows the commonly identified distinctions in the quality assessment literature (Donabedian, 1968, 1980; Brook and Avery, 1976): structure, process, and outcome. We have added a category of "global" quality labelled as reputation; it has been observed that patients may focus on the global aspects of health care (Komaroff, 1985), and that judgments of reputation are also made by professionals (Bausell, 1985).

It is beyond the scope of the present review to comment in detail about the validity and reliabilty of various indicators of quality of care, but it is worth noting that continuing work to refine and clarify the meaning of objective indicators is in progress (Donabedian, 1985). As Mosteller (1987) has noted, some types of indices will probably take the place of the many current measures, although not necessarily just one index.

Table 1

TYPES OF QUALITY OF CARE INFORMATION

CATEGORY	TYPE OF INFORMATION
STRUCTURE	Facilities
	Scope of services available
	Number and type of staff; staff ratios
	Staff training
	Hospital accreditation status
	MD specialization and board certification
	Teaching programs
	Convenience
	Evidence of staff disciplinary actions and/or malpractice litigation
PROCESS	Volume of services
	Tests ordered
	Treatments provided
	Length of stay
	Interpersonal quality of care
OUTCOME	Patient satisfaction/ratings
	Treatment effectiveness
	Morbidity rates
	Mortality rates
	Disability
	Adverse events (e.g., nosocomial infections)
	Readmission rates
GLOBAL	Reputation

Professionally defined quality criteria currently dominate the types of QCI available and being considered for use. However, "consumer-based" quality information must be considered in discussions of the effects of QCI because it is prominent among consumers' reasons for choice of physicians and hospitals (which are discussed in detail in a later section of this paper). Three types of quality information included in Table 1 are potentially "consumer-based": patient satisfaction (or patient ratings), interpersonal quality of care, and reputation.

According to Russo's (1987) model of barriers to effective use of information by consumers, the first environmental barrier is usually a lack of available information. At present most of the types of information included in Table 1 are difficult for consumers to obtain, with the exception of the three consumer-based indicators. Even information on the educational background of private practice physicians, which would seem to be available from their offices, can be difficult or impossible to obtain (Glassman and Glassman, 1981).

Disagreement among experts about the appropriate type and form of information is another deterrent to making information available. Researchers do not agree on the criteria for evaluating quality nor on the most appropriate indicators and methods of data presentation (Donabedian, 1985; Mosteller, 1987). The ongoing debates and developmental work in these areas will most likely increase consumer confusion in the short-term.

The second environmental barrier is provision of the wrong type of information; information that is too technical or too complicated will be of little use to consumers (Russo, 1987). The extent to which QCI is simple or complex will affect the amount of effort necessary to understand, recall, and apply the information. Further, consumer perceptions of "simplicity" can be misleading with respect to concepts which professionals readily acknowledge as representing complex phenomena (e.g., mortality data, volume of surgery).

There is reason to be concerned about the potential for such information to be misinterpreted, with possible grave consequences. For example, a high-risk patient facing surgery might avoid a certain hospital because of its high absolute mortality rate. However, if s/he is operated on at a less well equipped or less experienced hospital and requires the best tertiary care available, it could result in complications, disability, and even death. Likewise, a consumer obtaining elective surgery at a hospital with high volume of that surgery may in fact receive unnecessary surgery with its concomitant risks. Hence, to reduce barriers to consumer use of QCI without misleading consumers with information that appears simple but is not, QCI indicators should be appropriately adjusted statistically (for age, case mix, etc.) and should be presented along with clear interpretation of their meaning.

In consumer information processing (CIP) models, the extent of external information search depends on the consumer's perceptions of the relative costs and benefits of seeking new information. The preceding discussion focused on significant environmental barriers to obtaining information. There is an additional information processing factor related to search levels -- confidence

in the ability to use information (Wilkie, 1986). The types of QCI which consumers are most likely to feel confident in using would probably be the consumer-based indicators (satisfaction with care, interpersonal quality of care, reputation) and indicators of structure (particularly facilities/ amenities, convenience, and provider background). It is likely that consumer propensity to seek and use QCI about the technical process and outcomes of medical care would increase only through provision of guidance for interpreting and using these types of information, in addition to increased accessibility of the information.

In summary, analysis of the characteristics of various types of quality of care information (QCI) suggests several important directions for promoting effective consumer use of QCI. First, there is a pressing need for further research and agreement among health services researchers about the appropriate indicators of quality of care, and the best form for their use as consumer information (including statistical adjustments for age, case mix, etc.). Next, until more "expert-based" information about quality care is available to the public, consumers will continue to rely on the limited available information which they feel confident that they can use. QCI for consumers should include clear directions for interpreting the meaning of indicators. Last, there is a need for development and testing of methods to guide consumers in the interpretation and use of quality of care information.

Sources of Health Information

The American public receives a great deal of health information from health professionals and mass media sources. A national study in the 1960's showed that newspapers and magazines were the major media sources of health information (Wade and Schramm, 1964). Those with higher education and income levels are more likely to obtain health information from print media, while the poor and less educated people receive more information from television (Wade and Schramm, 1964; Greenburg and Dervin, 1970). Two nationwide surveys revealed that 80 percent of respondents reported receiving a great deal or some health information from physicians, while more than two-thirds received health information from public service announcements on television or radio (NHLI, 1973; Pacific Mutual, 1978). Other common sources included newspaper and magazine articles, family and friends, and voluntary health organizations (NHLI, 1973; Pacific Mutual, 1978; Freimuth and Marron, 1978: General Mills, 1979; Gombeski et al., 1982).

During the past decade, the volume of available information on how and where to obtain high quality medical care has grown rapidly. The first "generation" of such information consisted of books on how to determine when to seek professional medical help and how to choose and use physicians and hospitals (Sehnert and Eisenberg, 1975; Vickery and Fries, 1976; Belsky and Gross, 1975; LeMaitre, 1979). Subsequent books advised consumers and health professionals about how to provide and interpret useful consumer health information (Madnick, 1980; Cornacchia and Barrett, 1980, Rees and Young, 1981). And within the past five years, consumer action groups have offered a variety of publications with information on how to evaluate and select health

care providers (e.g., People's Medical Society; Rovner, 1986). Most recently, newspapers and magazines are publishing articles providing consumers with guidance in selecting quality medical care, both on a general level (Pekkanen, 1987a) and for specific physicians (Pekkanen, 1987b) and hospitals (Hamilton, 1987; Consumer Checkbook, 1987).

DESCRIPTIVE STUDIES: REASONS FOR CHOOSING AND CHANGING HEALTH PROVIDERS, AND PATIENT SATISFACTION

In this section, we review descriptive studies of three stages of consumer prepurchase and postpurchase behavior in choice of health care providers: reasons for choice of health services; decisions to change health care providers, or "doctor shopping;" and patient satisfaction with health care. These studies are useful for understanding the anticipated effects of QCI on consumer choice of physicians and hospitals because they provide data about the heuristics, or decision rules and processes, that consumers develop and use. Patient satisfaction represents postpurchase information, and thus illuminates our understanding of cumulative consumer learning that feeds back into future development of heuristics.

Although a great deal of research has been conducted about the determinants of health care utilization, studies of reasons for consumer choice of specific physician or hospital services have been few in number. These studies come from both the fields of health services research and health care marketing, and vary in methodological quality and completeness of reporting. We placed greatest emphasis in our review on studies that provided adequate information about the populations studied, sampling methods, and operational definitions of the variables studied.

Reasons for Choice of Health Services

Table 2 summarizes ten recent surveys of reasons for choice of health services in chronological order. Our discussion here focuses on two reasons

TABLE 2

Surveys of Reasons for Choice of Health Services

Reference	Population	Choice Behavior	Reasons for Choice
Stratmann, 1975	521 households in Rochester, NY	Choice of health services (hospital, MD, clinic)	Quality (> 40%) Convenience, time, attitudes, cost
Flexner, 1978	Women needing abortions	Choosing an abortion service	Immediate availability of appointment Cleanliness & respectability Medical competency of staff
Glassman & Glassman, 1981	286 women who recently gave birth	Choice of an obstetrician	Recommended by a friend or relative (46%) Recommended by a nurse (14%)
Inguanzo & Harju, 1985a	Consumers nationwide	Choice of hospital	Good medical care (48%) Close to home Availability of latest technology & equipment
Stewart et al., 1985	229 families in Arkansas	Choice of primary care physician	Recommendation of friend or neighbor Personality of provider How much information provider gives Can get appointments quickly
Wotruba, 1985	190 heavy and infrequent users of care	Use of MD services in nonemergency situations	Heavy users: cost, convenience, doctor's interest in patient Infrequent users: lay referral, convenience, courteous staff
Book & Stockton, 1986	521 consumers	Choice of dentist	Most common: recommended by a friend or relative

TABLE 2, continued

Surveys of Reasons for Choice of Health Services

Reference	Population	Choice Behavior	Reasons for Choice
Farrell, 1986	2,113 Medicare beneficiaries	Enrollment in alternative Medicare health plans	Lower cost (51%) "Word of mouth" from friends and relatives (31%)
O'Shea et al., 1986	Dentists	Patient turnover/ source of new patients	Lay referral
LeFebre, 1987	241 women who recently gave birth	Selection of an MD for prenatal care	Professional competence (friend or MD recommendation, specialty, and hospital used) Convenience

that emerged most often as decision rules for choice of health services: lay referral, and consumer perceptions of good quality care.

Lay referral. Eliot Freidson's seminal work on the lay referral system identified the recommendations of friends and relatives as central to the choice of health providers (Freidson, 1961). Common wisdom and numerous studies support the importance of lay networks' advice on initial selection of a physician or hospital (e.g., Glassman and Glassman, 1981), and a recent survey revealed that 31% of those enrolled in alternative Medicare health plans said they were most influenced by "word of mouth" from friends and relatives (Farrell, 1986). Selection of a dentist is similarly affected by lay referral. A recent survey of 521 consumers found that "recommended by a friend or relative" was the most common reason for choice of dentist (Book and Stockton, 1986). Dental practitioners are aware of this phenomenon: dentists surveyed about patient turnover reported their major source of new patients to be lay referral (O'Shea, Cora, and Ayer, 1986).

The lay referral system may be relevant to the effects of quality of care information for two reasons. First, the advice of friends and relatives provides a simple heuristic in decisions for which consumers feel that information is difficult to acquire or evaluate. Second, lay opinion may be regarded as an acceptable substitute for expert opinions on the quality of care. A central point made by Leon Festinger's theory of social comparison is that when an objective basis for defining reality is not easily available, people will rely on a social definition of reality produced by a mutually shared opinion (Festinger, 1954).

Consumer perceptions of good quality care. Some recent consumer surveys reveal consumers' reasons for choosing sources of health care. A national consumer survey found that 79.5 percent of consumers have a hospital they prefer to go to for most of their health care needs, although most indicated that they did not have "very strong" loyalty (Inguanzo and Harju, 1985a). Key reasons for their preferences were, in order of importance: good medical care, proximity to home, prior experience, and a doctor's recommendation. "Good medical care" represented a variety of responses, including availability of specialists, technology, and equipment; the range of services offered; receiving personalized care; and the overall hospital reputation. The authors concluded that consumer perceptions of "quality of care" represent various components of hospital structure, performance, and reputation, rather than any single indicator (Inguanzo and Harju, 1985a).

Stratmann (1975) used a rational choice model of utilization to survey households in the area of Rochester, New York about factors influencing their choice of health services. He categorized the responses into five categories: economic factors, waiting time in the doctor's office or hospital, convenience in access to care, sociopsychological factors, and care quality factors. Preferences in these categories predicted choice in 80 percent of all cases; and quality of care was by far the most important decision component, followed by sociopsychological factors. His findings underscore the importance of consumer perceptions of quality of care, but must be viewed with caution due to his use of conceptually overlapping categories of decision components (Stratmann, 1975).

Wotruba et al. (1985) explored marketing factors important to consumers' use of physician services in nonemergency situations. Heavy users of care were most influenced by cost and third party coverage, convenience, and the doctor's interest in the patient. Infrequent users were most affected by lay referral, convenience, and courteous staff. In other words, consumers were concerned about cost and convenience, but also made choices based on interpersonal quality of care and amenities of care. This study did not include perceptions of the technical quality of care among the response choices.

Two studies which examined womens' reasons for selecting health care providers addressed consumer perceptions of good quality care. Flexner (1978) studied factors important to women when choosing an abortion service, and found their highest priority was getting an appointment right away, followed by cleanliness of the facility, respectability, and medical competency of the facility and staff. LeFebre and colleagues (1987) explored whether dimensions of patient satisfaction influenced the selection of a physician for prenatal care. Based on the responses of 241 women who had recently given birth, two broad factors emerged as most important: "professional competence" or quality as a reflection of friends' and physician recommendation, specialty, and hospital used; and convenience. Though this study explicitly tested and found evidence supporting two dimensions of Hulka's (1975) model of patient satisfaction, it did not measure patient satisfaction with the personal qualities of physicians. The use of a closed-ended questionnaire and failure to measure this dimension limit the conclusiveness of this study.

In summary, studies of consumers' reasons for choosing health services indicate that consumers often rely on the recommendations of friends and relatives as a simple heuristic, due to the lack of information about quality of care, the difficulty of evaluating such information, and/or their belief that lay opinion is an adequate substitute for expert opinion. Also, in view of consumers' willingness to rely on the opinions of friends or families, the application of quality information might be enhanced and reinforced by providing information in settings where existing groups gather. These studies demonstrate that "quality" is important to consumers (even in the absence of objective information about the quality of care). Thus, the findings suggest that simple, accessible QCI may become important in consumer decision processes as it becomes available.

Reasons for Changing Health Providers

To the extent that perceptions of quality of care are important in consumer choice of health care, they should also play an important role in the decision to change doctors or to use outside services when covered by a prepaid health plan. The prevailing idea that continuity of care is valuable mitigates against "doctor-shopping," suggesting that a willingness to change physicians is driven by strong motivations (except when a doctor's retirement or geographical relocation is the reason for choosing a new doctor).

We found five studies of "doctor-shopping" behavior, and have summarized the studies in chronological order in Table 3. These studies used a variety of conceptual frameworks and measures to assess the extent and predictors of changing doctors. We will first briefly describe each of the studies, and then address the prevalence, correlates, and reasons for consumer decisions to change doctors.

Anderson and Bartkus (1973) studied factors accounting for the use of outside services among 579 college students enrolled in a prepaid health plan. Their findings suggested that three types of social-psychological factors — symptom sensitivity, perceived quality of care, and friends' perceptions of quality (lay referral) — explain a substantial amount of the outside physician use. Further, they found that lay referral and the students' own perceptions of the quality of care within the health plan seemed to go hand in hand.

Kasteler et al. (1976) explored factors related to consumers' tendency to shop for medical care among 576 families in Utah. They defined "doctor shopping" as a family member's changing doctors by choice without physician referral, for reasons other than their previous physician's retirement or leaving the area. Forty-three percent of respondents were doctor-shopping families, with significantly more doctor-shopping among families of high socioeconomic status (SES) than those of low SES (48% vs. 37%). While most people had confidence in doctors in general, those with low confidence in their own doctors were more likely to be doctor-shoppers. Key determinants of doctor shopping were low ratings of the socioemotional and technical competence of their previous physicians (Kasteler et al., 1976).

TABLE 3

Surveys of "Doctor-Shopping" Behavior

Reference	Population	Choice Behavior	Findings: Reasons for Choice
Anderson & Bartkus, 1973	579 College students in a prepaid health plan	Use of outside (non-plan) MDs	Perceived quality of care Friends' views of quality (lay referral) Symptom sensitivity
Kasteler et al., 1976	576 families in Utah	Family member changing MD by choice without referral	Ratings of previous MDs' technical and socioemotional competence Low confidence in their doctors
Greene et al., 1979	1,278 residents of 2 southern rural communities	Seeking new sources of primary care (not free or specialty care)	Correlates of choice: White race More frequent MD visits More shopping for acute and disabling conditions
Wolinsky & Steiber, 1982	1,530 adults, nationwide	Decision to choose a new MD	Recommendations of friends & neighbors (lay referral) Doctor's manner and personality Location, cost, and ease of of getting an appointment
"Psychographics help..." 1987	2,000 consumers nationwide; "quality minded users" (largest group)	Changing health care providers	Only on advice of a trusted friend or relative, or on recommendation of their current doctor

Greene, Gillings, and Salber (1979) used data from two southern rural communities to describe the extent and types of shopping for medical care. Of those surveyed, 28 percent were "true shoppers" seeking new sources of primary care rather than specialized or free care. True shoppers were more likely to be white than black, and were those who made more frequent physician visits. This study did not report assessments of educational level, attitudes, or quality of care ratings.

Wolinsky and Steiber (1982) explored factors in the decision to choose a new doctor in a nationwide survey of 1530 adults. Five were very important: the recommendation of friends or neighbors (lay referral), the doctor's manner and personality, location, cost, and ease of getting an appointment.

In a nationwide study of 2,000 consumers in ten cities, the Peabody Group (a market research firm) conducted telephone interviews with a group of "quality minded consumers" to learn about the conditions under which they would change health care providers (Psychographics, 1987). These consumers reported that they would change providers only on the advice of a trusted friend or relative, or on recommendation of their current doctor (i.e., referral).

Prevalence of doctor-shopping. The studies reported here do not present a consistent estimate of the prevalence of doctor-shopping in the general population. A Gallup poll found that approximately one out of four individuals saw a new doctor on their most recent physician visit, if referral visits were included (Gallup, 1978). Kasteler et al. (1976) defined 43 percent of the families in their study in Utah as doctor-shopping families, with significantly

more doctor-shopping in high vs. low SES families (48% vs. 37%). Greene et al. (1979) classified 28 percent of the 1,278 southern residents in their study as "true shoppers." Each of these studies used a slightly different definition of "doctor-shopping" and the high prevalence found in the Utah study may reflect the higher likelihood of finding a behavior when the family is the unit of analysis. A conservative estimate based on these studies would be that approximately 20 to 30 percent of consumers choose a new physician over the course of a year.

Correlates of doctor-shopping. Based on the two studies that examined sociodemographic correlates of doctor-shopping, consumers who are white and of higher socioeconomic status are most likely to change doctors by their own choice. Also, those who make more frequent physician visits are likely to be "true shoppers," (Greene et al., 1979) but this may be an artifact of the increased number of opportunities to make health care choices.

Reasons for consumer decisions to change doctors. These studies' findings are consistent with the reasons consumers give when asked why they make initial health care use choices: because of a friend or relative's recommendation, because they are seeking better interpersonal quality care, or because they lack confidence in the quality of the previous provider's technical competence. These findings provide considerable support for the contention that social networks, affective qualities of the physician, and perceived technical quality of care are important in consumer decisions, as these were identified far more often than the other key reasons.

Summary: doctor-shopping. An estimated 20 to 30 percent of consumers choose a new physician each year; this suggests that opportunities to acquire and process QCI for making health care choices are fairly common. Those who are most likely to engage in doctor-shopping are high SES, white consumers; doctor-shopping may thus be correlated with the motivational characteristics of "active consumer orientation." The most common reasons cited for changing doctors are lay opinion, or dissatisfaction with interpersonal or technical quality of previous medical care. The low external search heuristics (e.g., for lay referral) and experiential decision criteria underscore the low effort expended to obtain "expert information" in most consumer decisions about choice of health care.

Patient Satisfaction

Consumers' evaluation of high quality physician and hospital care has often been studied within the framework of "patient satisfaction," a concept that is related to but not synonymous with evaluation of the quality of care (Louis Harris, 1985). Typically, favorable perceptions of quality are associated with greater satisfaction (Doyle and Ware, 1977). When viewed within a framework of consumer information processing (CIP), patient satisfaction represents postpurchase information, and thus becomes part of the cumulative consumer learning used for future decision rules and processes.

In this section we briefly review the development of conceptually-based measures of patient satisfaction, and studies of patients' concepts of good quality physicians based on their prior experiences. It is beyond the scope of

this paper to cover the extensive literature on patient satisfaction. Rather, we have selected these studies of patient satisfaction specifically for their contributions to understanding consumer learning in decision making regarding choice of health services.

Zyzanski et al. (1974) completed extensive scale development procedures and identified three dimensions of satisfaction: professional competence, personal qualities, and cost-convenience. They found significant but moderate inter-correlations among the subscales measuring each dimension. Ware and Snyder (1975) identified four major dimensions of patient attitudes: attitudes toward physician conduct, availability of services, continuity/convenience, and access. Their measures of attitudes toward physician conduct included both attitudes toward caring (humaneness, personal qualities) and toward curing (technical quality, competence), which were highly intercorrelated. One or more of three possible explanations for the competence and humaneness correlations may explain the high correlations they found: 1) the qualities may be undifferentiated in the patient's eyes; 2) these qualities may go hand in hand in physician performance; and 3) the scale items may lack sufficient conceptual distinction; in fact, outcome perceptions were not included among the "curing" measures.

Reader et al. (1957) studied 50 patient-physician relationships and queried patients about their concepts of a good doctor. Their first priorities included kindness, understanding, interest, sympathy and encouragement; next in importance were intelligence, knowledge, skill, and training. Their conclusion thirty years ago that patients assign greatest importance to caring qualities,

and next importance to technical skill, was found again in a 1986 study asking a sample of consumers to describe their view of an ideal physician (Gochman et al., 1986).

Both historically and currently, criteria and procedures for quality assessment in health care have reflected professional definitions and values of quality (Kelman, 1976). Consumer and provider views of quality of care are similar, but not entirely congruent, since clients place greater weight on interpersonal aspects and the amenities of care (Wyszewianski et al., 1982). Irrespective of whether professionals believe that consumer opinions of the quality of care are valid, an understanding of consumer evaluation of the medical care is essential to the success of any attempts to use experts' quality information to influence consumers' choice of health care. There is much that is not known about consumer evaluation of health providers and systems (Lebow, 1974); but to the extent that consumers hold beliefs about the quality of care, those views will play an important role in their efforts to secure quality medical care.

Our review of descriptive studies of consumer reasons for choosing and changing health providers, and patient satisfaction, clearly demonstrate the important role of the opinions of consumers and their social networks in evaluation and decision processes regarding choice of physicians and hospitals. They demonstrate that "quality is in the mind of the consumer" in a marketplace economy. Expert-based QCI will seem less "foreign" to consumers if it can be presented along with reliable consumer assessments of the quality of care.

EFFECTS OF INFORMATION ON HEALTH-RELATED BEHAVIOR

Traditional approaches to health education were based on three assumptions: people did not act wisely with respect to their health because they lacked information; information-giving would overcome ignorance; and people would use information effectively to improve or maintain their health (Hochbaum, 1981). The accumulated experience of health education campaigns, along with empirical studies of health knowledge and behavior change, have shown these assumptions to be simplistic and usually inaccurate. Rather, it appears that knowledge can be influential under certain types of circumstances: when there is a readiness toward action, few barriers, and available information about desirable actions (Mechanic, 1974). Information on the quality of care will sometimes be acquired under such circumstances, and thus may help consumers to make decisions about which physicians and hospitals are best.

Presently, no experimental study directly addressing the effects of quality of care information (QCI) on choice of health providers has been reported. However, evidence related to this question can be drawn from studies of health information and informational intervention strategies. In this section we review experiments and case studies in areas related to the effects of consumer QCI on choice of physicians and hospitals.

Our selection of "related areas" for review draws on theories of consumer information processing regarding the conditions necessary for effective consumer information use in health care decision making. We have used an adaptation of Russo's (1987) two-dimensional model of barriers to effective

information use, i.e., the two primary types of barriers are those in the information environment and consumer-based barriers. We have adapted this model to fit the organizing framework presented by Hibbard and Weeks (1987b), which proposes two requirements for effective information use: (1) access to information (environmental), and (2) consumer orientation (consumer-based).* Hibbard and Weeks organized their discussion around three health care consumer decision points: when to seek care, selecting a provider [or product, as an analogy], and accepting provider advice.

Figure 2 presents the conceptual framework for six related areas that we will use to examine the effects of information on health-related behavior. Those areas include three behavioral targets within the medical care setting (i.e., accepting provider advice): patient compliance, patient information-seeking and participation, and informed consent. We will review two areas relevant to selecting a provider or a product with health-related attributes: nutrient labelling and point-of-choice nutrition education, and consumer information programs about the cost and quality of care. Our analysis concludes with a review of self-care programs designed to influence consumer choices about when to seek care.

* Hibbard and Weeks (1987b) also consider cost incentives as a requirement. Consideration of that dimension is beyond the scope of the present paper and has been left out in our adaptation of their model.

FIGURE 2

CONCEPTUAL FRAMEWORK: REVIEW OF AREAS RELATED TO EFFECTS OF INFORMATION ON HEALTH-RELATED BEHAVIOR*

Requirement	Consumer Decision Points: WHEN TO SEEK CARE	SELECTING A PROVIDER/PRODUCT	ACCEPTING PROVIDER ADVICE
ACCESS TO INFORMATION	Information for determining when care is needed	Information on cost and quality of alternative products/sources of care	Information on treatment options, costs/risks and benefits
CONSUMER ORIENTATION	Willingness to engage in self-care	Willingness to engage in comparison shopping	Selective acceptance of provider advice
RELATED AREA(S):	Self-Care Programs	Nutrient Labelling and Point-of-Choice Nutrition Education Consumer Information Programs: Quality and Cost of Care	Patient Compliance Patient Information-Seeking and Participation Informed Consent

*Adapted from Hibbard & Weeks, 1987b

Our selective reviews of each of these areas have been formulated to help answer questions relevant to the central topic of this paper: does quality of care information (QCI) influence consumers' choices of physicians and hospitals? Because of the wide variation in the state of the scientific literature in the "related areas," we have approached the various areas in such a way as to permit the best possible analysis for each area within the constraints of this paper. We describe our review approach at the beginning of each section.

Responses to Information Within Medical Care

Information and Patient Compliance. There is a vast literature on patient compliance which has been reviewed and synthesized in numerous book chapters and journal articles. Thus, we will not describe individual studies in detail, but will present the most important conclusions from reviews of this research.

According to a review by Haynes (1979), vigorous efforts to improve compliance using information about diseases and their management have substantially increased patients' knowledge about their conditions, but have not improved either compliance or therapeutic outcomes. While "provision of information about the nature of illness and its treatment, at a fairly abstract level, has generally not increased adherence," certain knowledge about how to follow the physician's advice *is* essential for adherence (Becker, 1985). Thus, a minimum amount of instrumental information is necessary, but usually not sufficient to promote patients' adoption of prescribed medical regimens.

People need not only information, but also need the skills, peer/social support, and follow-up and reinforcement for behavior change (Glanz, 1985).

The important roles of skill development and social influence are not explicitly addressed in the consumer information processing (CIP) models. CIP models tend to have a prominent individualistic bias and largely ignore the realm of social information processing and decision making (Rudd and Kohout, 1983). However, there are several applicable elements within the CIP perspective which might be interpreted or extended to the social realm: consumer information processing capacity, decision processes, and learning processes.

Research on patient compliance provides several lessons which are applicable to the question of the effects of QCI on consumer choice of health providers. Most important, it is clear that for many people, information is necessary but not sufficient. Consumers need to know not only where they can obtain high quality medical care; they must have the "active consumer orientation" as a stimulus to expending the effort needed to learn how to gain access to that care. They also need support from family, friends, and their primary care physicians in the case of follow-up treatment.

Increasing Patient Information-Seeking and Participation. Medical professionals' recognition of patients' desire for more information about their health care has stimulated recent research regarding patient information-seeking and participation in medical encounters. We identified one study

describing the extent of patients' desires to participate in medical decision making, and two experimental studies of educational efforts to increase patient information-seeking. Application of general advice about obtaining quality health care requires that consumers actively ask questions of physicians or hospital staff.

Strull et al. (1984) studied 210 hypertensive outpatients and their 50 physicians to learn about patients' preferences for information and discussion, and their desire to make decisions about their treatment. They found that clinicians tended to underestimate patient preferences for information, but overestimated patients' desire to participate in actual decision making. Their findings suggested that both consumer-based and environmental barriers to information were deterring effective information provision: the patients' lack of initiative in seeking information was exacerbated by physician concerns that informed patients would attempt to usurp their decision making authority.

Two experimental studies demonstrated that patients can successfully be "coached" to ask more questions of physicians and to secure more information about their condition and treatment (Roter, 1977; Greenfield et al., 1985). In Roter's (1977) study the experimental group's subsequent interaction with physicians was marked by negative affect, but the patients were more satisfied with the results of the encounter and had better appointment-keeping records over the next four months. The experimental group patients in Greenfield's (1985) study were twice as effective as controls in obtaining information from their physicians, were more satisfied with their care, and had better health outcomes six to eight weeks after the visit.

Both Strull et al.'s (1984) study and Roter's (1977) findings suggest that physicians may be uncomfortable with patients' assertive efforts to obtain more information. However, the two experiments suggest that efforts to encourage patient-consumers to seek information do have the potential to increase information levels, satisfaction, adherence, and health status. Further studies are needed to learn whether these results can be consistently replicated in other practice settings.

The small research literature on patient information-seeking and participation in medical encounters shows that educational and behavioral techniques such as encouragement, preparation, and practice can effectively enhance consumer orientation, and hence the motivation and effort expended to acquire information. They further point to medical professionals' needs to become aware of patient informational desires and to acquire the resources and skills to provide information.

These studies provide useful lessons regarding the influence of QCI on consumer choices. In order for consumer information on the quality of medical care to affect consumer decisions, two strategies are important: (1) programs to encourage consumers to ask questions and seek information, and (2) development of continuing education and resources for health care providers to enhance their willingness and ability to provide and help interpret QCI.

Informed Consent. The literature on informed consent in health care covers several topics within the broad heading of informed consent. These include: research on medical practices regarding informing patients, patient understanding and memory of information on the risks and benefits of treatment, public and patient reactions to disclosure of risk information, and reviews of ethical, medical, and legal issues related to informed consent. For our review, we summarized studies of medical practices, patient learning, and public and patient reactions regarding informed consent.

The overall goal of the informed consent process is to give patients sufficient information about medical recommendations so they can make informed choices (Rimer et al., 1984). However, the consent procedures of many hospitals do not encourage active involvement of patients in making decisions (Clark et al., 1982).

The language used in consent forms often appears to be too technical for patients to understand (Grunder, 1980). In a study of consent forms for 116 cancer patients, Rimer et al. (1984) used a standard readability formula to analyze the forms' levels of difficulty. They found that the average reading grade level for consent forms was 18 to 19 years of education, which is significantly higher than the educational level in most patient populations.

Three studies assessed patient learning of the information contained on their consent forms following the consent process. Each study compared patients' recall and understanding with the information they were given, within a day after receiving oral and written explanations. Patients in Rimer's

(1984) study could recall an average of 36 percent of the items they were told. Only 60 percent of the 200 cancer patients studied by Cassileth et al. (1980) understood the purpose and nature of their treatment on the day after signing consent forms. Muss et al. (1979) found that only 29 percent of patients they studied knew the purpose of their treatment even though they had signed consent forms.

A 1982 poll by Louis Harris and Associates revealed that a majority of the public is in favor of complete disclosure in informed consent, and that patients oftn want more information than physicians think is good for them (President's Commission, 1982b). However, the effects of complete disclosure of risks may not always be positive. A study of comprehensive risk disclosure for parents considering elective circumcision for their newborns found that information about the numerous risks of circumcision did not affect decisions about whether to circumcise. However, it did reduce parents' confidence in their decisions, and increased their dissatisfaction with the care they received from their physicians (Christensen-Szalanski et al., 1987). Thus, "too much" information or unwelcome information about the possible risks in medical care may be disquieting to health care consumers.

Studies of informed consent in health care have relevance to the question of whether QCI affects decisions about health care choices for several reasons. First, informed consent involves the disclosure of risks involved in medical care, which may be seen as analogous to presentation of data regarding adverse events in hospitals (e.g., iatrogenic illness, mortality data).

Second, informed consent has often been portrayed as a rational means of making decisions about health care, thereby suggesting that it may achieve its educational goals only for well-educated and articulate individuals (President's Commission, 1982a); the same challenge could be made for the limited usefulness of QCI.

In addition, informed consent usually involves presenting information to patients when they are in an acute emotional state which clouds their ability to comprehend or effectively process the information. When consumers are faced with an immediate decision about hospitalization or treatment for urgent health problems, they too would probably have difficulty processing quality of care information. They may have to rely on the simplest and most accessible heuristic for decision making: accept the physician's advice, use the most convenient hospital, and so on.

The lessons from research on informed consent for understanding the effects of QCI on consumer choice are not simple. This research suggests that we need to find effective of ways of communicating complex and important information -- possibly repeating information and using various media. Also, information which is highly technical may be too difficult for many consumers to understand, remember, and use. The potential of risk information to confuse, frighten, or reduce the confidence of consumers should be examined as a potential drawback of full disclosure of adverse QCI to consumers. There is a need for developing simple yet accurate informational formats, and allowing for decision making when the acute stress of a diagnosis or recommendation has abated.

Responses to Information Regarding Choice of Healthy Products and Health Services

Consumer Use of Nutrition Information. The introduction of federal regulations regarding labeling of packaged food products and increased scientific understanding of the role of nutrition in prevention of major health problems have stimulated a growing body of research, educational effort, and policy debate regarding consumer use of nutrition information. Recent literature about consumer use of nutrition information has included policy reviews, consumer surveys, laboratory experiments, and field experiments in naturalistic environments. Much of the current literature has been summarized in recent review papers (e.g., Liefeld, 1983; Glanz and Mullis, 1987). In our discussion of this area, we will highlight the main issues and the thrust of research findings, and highlight selected recent studies in greater depth.

Consumers are systematically exposed to nutrition information from a variety of sources. Chief among these are (1) nutrition labels on packaged food products and (2) point-of-purchase nutrition information displays in supermarkets, restaurants, and cafeterias. For the most part, the information is provided for the avowed purpose of affecting consumers' food choices and dietary intake, and thus improving their health. Secondary purposes include increasing consumers' awareness of nutrition, increasing their nutrition knowledge, and pressuring food manufacturers to modify their products to improve nutritional quality.

Nutrition labeling. The extent to which current nutrition labeling has been successful in meeting the goals set for it is a subject of considerable controversy. Critics have claimed that relatively few consumers use label information because labels contain too much information and too much technical information (e.g., Jacoby, Chestnut, & Silverman, 1977; Kahn, 1980). Detailed critiques have attributed the lack of label success to two characteristics of nutrition labels: (1) the type of nutritional characteristics listed, and (2) the presentation format for information about nutritional characteristics.

The question of which nutritional characteristics should be listed resulted in a basic labeling requirement for description of calories and other macronutrients (protein, carbohydrate, and fat), along with the content of various vitamins and minerals (i.e., micronutrients). These are usually presented to emphasize "positive" nutritional qualities, and listed in terms of the percentage of the Recommended Dietary Allowances (RDAs) supplied by one serving of the food. However, a number of studies have indicated that consumers consider information on "negative" nutritional characteristics to be more important and useful (e.g., Heimbach, 1981; Liefeld, 1983). This type of information would stress the desirability of limiting intake of certain nutrients (e.g., sodium, cholesterol, sugar) as opposed to "getting enough" nutrition for adequate health. The recent addition of sodium and cholesterol information (FDA, 1986; Heimbach, 1986) and other proposed additions to the standard nutrition label (USDA/DHHS, 1982) reflect nutrition policy makers' growing recognition of consumer demand for information on nutritional characteristics of foods which should be avoided or limited.

Problems with the format of the standard nutrition label have also been implicated as making the labels difficult for consumers to understand and use. Studies of graphic nutrient labeling formats have shown that it is easier for consumers to understand and requires less information processing time to use than the current tabular labeling format (Mohr et al., 1980; Rudd, 1986). However, Rudd and Turner (1983) also found that one type of graphic format, the graphic nutrient density format, has the potential to mislead consumers regarding the nutritional content and quality of food products. Research regarding the usefulness of label formats has prompted the Food and Drug Administration to propose simplifying the label format (USDA/DHHS, 1982). The proposed revisions would reduce the number of nutrient quantifications presented and simplify the label's organization.

Point-of-purchase nutrition information displays. Point-of-purchase nutrition information has many of the same goals as nutrition labeling. Research on the effectiveness of point-of-purchase nutrition information has yielded mixed results (Glanz and Mullis, 1987). In general, point-of-purchase information programs in supermarkets have been more successful in affecting improvements in nutrition knowledge and attitudes than in changing consumers' purchasing behaviors (e.g., Ernst et al., 1986).

Two recent studies found that point-of-purchase nutrition information was able to increase sales of "more nutritious" brands. Muller (1984) conducted a two-week study using large aisle signs comparing nutrient information across brands for selected high-volume foods. The signs were varied so there were 40 treatment periods each week, which were evaluated in comparison to a control

time period. The nutrition information affected brand choices toward more nutritious brands, as hypothesized. A second study evaluated the "Special Diet Alert" (SDA) program, which used brand-specific shelf markers and take-away information booklets to help shoppers find products for special diet needs (e.g., low cholesterol, low/reduced sodium, low calorie). Evaluation of the SDA program in a quasi-experiment comparing matched test and control grocery stores in the Baltimore and Washington, D.C. areas revealed that sales of shelf-marked products increased an average of 4 to 8 percent more in the test stores, and that 50 percent of those looking for special diet items used the signs (Levy et al., 1984).

Simplified display formats and the use of "negative" nutrition information have been concerns in point-of-purchase nutrition information as they have been in nutrition labeling. Russo et al. (1986) reported on two experiments testing the use of simplified information formats to reduce consumer effort in comparing alternative foods. Their studies, conducted in 14 supermarkets in the Chicago area, showed that lists of vitamins and minerals increased knowledge but did not influence purchases. However, a list of added sugar — a "negative" component to be avoided — increased the relative proportion of low-sugar breadfast cereals that were purchased. Hence, the simplified format was effective in modifying behavior only when it focused on a nutritional characteristic to be limited or avoided.

Research on consumer use of nutrition information is applicable to the understanding of the effects of QCI on consumer choice of physicians and hospitals in several respects. Nutrition information is of a technical scientific nature, and to achieve its avowed purpose of influencing consumer food choice it must be presented so that consumers can understand the information and evaluate alternative food products. The same conditions apply to consumer use of QCI. Specifically, consumers must understand the implications of the type of information presented (i.e., indicators of quality), and be able to interpret (process) and apply (evaluate alternatives) the information effectively and efficiently.

Presentation of "negative" information, or information advising avoidance of certain nutrients, seems to be most successful in affecting food choice behavior. This notion does not translate directly to the notion that "negative" quality of care indicators will be most useful; its importance in nutrition information flows logically from the relative importance of overnutrition as a health concern in American society today (as vs. undernutrition). However, there is a need for research regarding what type of QCI consumers find most useful in making health care decisions.

Research about the effectiveness and efficiency of consumer use of informational formats suggests that a variety of formats for provision of consumer QCI should be tested. Careful attention to avoidance of misleading formats is also important.

The finding that brand-specific information has been more successful in affecting consumer food choice can be applied to the anticipated effects of

quality of care information. It suggests that consumers will be most likely to use QCI that is specific to their available choices, i.e., that they prefer to process health care information by brands. Thus, information will have to be available for locally accessible areas in order for consumers to use it.

Secondary purposes for provision of nutrition information include increasing consumer awareness of nutrition and pressuring food manufacturers to modify their products to improve nutritional quality. These effects, which are known as non-use benefits of information, have important implications for provision of information on the quality of health care. Quality of care information provision may indirectly benefit consumers by stimulating competition, innovation, and disclosure of henceforth unavailable information to consumers (Mayer, 1981). We will discuss these non-use benefits of QCI in greater detail later in this paper.

Finally, the growing body of research on consumer use of nutrition information provides a useful model for studying the effects of QCI on consumer choice of physicians and hospitals. Research needs in the area of QCI effects should use a variety of methodologies and perspectives drawn from several disciplines: policy reviews, consumer surveys, laboratory experiments, and field experiments in naturalistic environments.

Consumer Information Programs: Quality and Cost of Care. Spurred by the increasing concern over costs of health care, employers and public agencies involved in financing health care have begun to introduce consumer information programs as part of their cost containment efforts. There are currently no reports of controlled experimental studies evaluating the type of programs we discuss in this section. Thus, in reviewing the area of "quality and cost" information programs, we had to rely on a small number of case studies and reports of research in progress.

While the central reason for these programs is to contain health care costs, they seek to improve the quality of health care by encouraging consumers to consider price and quality in their decisions. The experience of four recently reported demonstration programs merits review in our effort to speculate about the effects of quality of care information.

Table 3 summarizes four programs, two for employees and two for Medicare beneficiaries. The Options Program is a health information service which has been tested over five years on more than 5,000 individuals of all socioeconomic levels (Gardner, 1986). At Burlington Industries in New York City, the Options Program offers voluntary, on-site and/or telephone personal counseling during work hours regarding the choice of optimal health services. Counselors are primarily physicians and master's level nurses, who assist employees in understanding their treatment options for health problems, including what is known about the quality of various treatments and providers. The program also offers an incentive of a paid "wellness day" if medical plan savings are realized during an employee's first year in the program. Participation in the program is greatest among high-claims cost employees, for whom it has the

TABLE 4

CONSUMER INFORMATION PROGRAMS: QUALITY AND COST OF CARE

Program Sponsor/Provider	Strategies	Audience	Participation Level, Effects
Burlington Industries (NYC), Options Program (Gardner, 1986)	Health information service Personal counseling + incentives Voluntary, on-site during work hours, and/or by phone	employees of all SES levels	40% of high-claims cost employees used service; 4% of low-claims cost employees used group cost data show cost reductions from 15-45% for several companies savings depend on amount of counseling and extent of users' health needs
Ryder System, Inc. MedFacts Program (Charles, 1987)	Computerized data base with detailed physician and hospital profiles Employee education component Cost control incentive (refunded 25% of savings from finding billing errors)	employees covered by company self-insurance	46 users during first month leveled off to 2-3 per week; estimated 150 users at one year total cost containment strategy (of which this is one part) yielded $5 million in savings
AARP Informed Buyer Project (HCFA/AARP) (Farrell, 1986)	Education sessions conducted by older volunteers (peer education) 60-90 minute sessions, slide show, workbook, panel discussion	Medicare beneficiaries	97 volunteers trained and 7,000 beneficiaries attended sessions during 2 years (84-86) decreased resistance to joining HMOs (51% to 43%); 6.8% of attendees did join HMOs extensive demand for program slide show and workbook
HealthChoice "Brokered Consumer Choice Demonstration (HCFA/HealthChoice) (Farrell, 1986)	Information sessions/fairs Staffed by trained college students with background in gerontology	Medicare beneficiaries	11,000 attended 550 information sessions in Portland, Oregon 72% of attenders in Portland enrolled in a participating Medicare risk HMO in the area only 1,500 attended in San Francisco --below project estimates

greatest potential effect. Estimated group medical cost reductions ranging from 15% to 45% have resulted following the Options Program, depending on the amount of counseling provided and the extent of health needs of the employees (Gardner, 1986).

At Ryder Systems, Inc., a self-insured international transportation and business services company, the MedFacts program is an employee education program which is part of a comprehensive cost containment strategy. MedFacts seeks to help employees in the South Florida area "obtain the most appropriate care at the best price." It assists employees in choice of medical providers based on quality and cost information in a computerized data base of physician and hospital profiles. The program is promoted aggressively and includes a cost control incentive to increase awareness of prices: employees receive 25% of the savings realized if they find errors in bills from providers of medical care. An estimated 150 employees are expected to use MedFacts during its first year of operation. Ryder states that their total cost containment strategy has yielded $5 million in savings on their health care bill (Charles, 1987).

Both the Options Program and MedFacts are innovative consumer information initiatives aimed at improving quality care and containing costs. However, the generalizability of their results for predicting effects of QCI is limited for several reasons: they provide incentives as well as information programs, they lack evaluation designs permitting the separation of the effects of these initiatives from other cost containment efforts; and they report outcomes only in terms of expenditures, and not with respect to knowledge, utilization, or choice of specific physicians and hospitals.

Two consumer information programs sponsored by the Health Care Financing Administration's Office of Research and Demonstration are designed to inform consumers in order to make alternative Medicare heath plans work, thereby increasing competition and containing rising costs. Senior peer educators were trained to conduct educational sessions in the American Association of Retired Persons (AARP) Informed Buyer Project. These sessions were attended by 7,000 beneficiaries between October 1984 and June 1986. Resistance to joining HMOs dropped from 51% to 43% after the sessions, and 6.8% of those attending actually joined HMOs (Farrell, 1986).

The HealthChoice "Brokered Consumer Choice Demonstration" seeks to encourage consideration of alternative health plans in Oregon and California. In Oregon, 11,000 people attended 550 information sessions and 72% of attenders enrolled in a participating Medicare risk HMO in the area. In California, direct mailings and media advertisements were used to publicize "HMO fairs." During one month in 1986, 118 information fairs were held but only 1,500 people attended, which was below project estimates (Farrell, 1986). There is insufficient published information at present to understand the reasons for such wide differences in participation and effects in these programs in different locations.

It appears that consumer information programs for senior citizens can sometimes achieve high participation rates, and that they can stimulate some consumers to select health plans they were unaware of. Nevertheless, the outcome of interest in these projects (i.e., joining Medicare HMOs) does not permit evaluation of the actual effects of QCI on choice of physician and hospital services.

The experience of the four programs summarized in this section indicates that consumer information programs on the quality and cost of health care can be implemented and can attract participants. Further, the corporate programs have inspired the confidence of employers that they can both improve quality of care and reduce cost. Controlled experimental studies of QCI programs are needed to permit a better understanding of which components can achieve which types of effects in which audiences.

The program reports we identified did not differentiate between consumer reactions to information on price and information on quality. In assessing health care providers, particularly hospitals, patients often use price as a surrogate for quality (Marquis and Kanouse, 1985). Much consumer research has shown that people often infer product quality from the price charged for the product; i.e., they perceive lower price to be indicative of lower quality. They are particularly likely to rely on price cues when other quality information is unavailable and when they have less experience in evaluating the product (or service) itself (Monroe & Krishnan, 1984; Shugan, 1984). In other words, price can represent a simple heuristic, and is easier to process than information on quality. This suggests that some quality-minded consumers would choose higher priced health care in the absence of quality information.

Research on <u>actual</u> price-quality associations has been difficult because it is hard to obtain stable price information and difficult to get agreed-upon standards of quality even for products which are mass produced (Wilkie, 1986). One study of 135 product categories found that just over half (51%) of the product categories showed positive price-quality associations (Sproles, 1977). Consumer economists and activists have long argued that more objective quality information should be made available to consumers in a timely fashion; thus, the issues regarding QCI are not necessarily unique to health services but are concerns for other consumer products as well.

Responses to Information About When to Seek Care

Self-Care Education. Self-care education for adults has proliferated since the early 1970s. Programs vary by sponsor, clients, content, methods, and evaluation, but they share a common goal: to help people take more effective control of their health, one element of which is safe and effective use of professional resources (Levin et al., 1976; Levin and Idler, 1981). One common type of self-care program aims to reduce the use of medical services for trivial reasons when a physician is not needed, based on the assumption that information will lead to better decisions (Caporeal-Katz and Levin, 1987). Access to technical information is a nearly universal component in medical self-care (Levin and Idler, 1981). Although these programs aim to influence consumers at a decision point that conceptually precedes the specific choice of provider, they are useful in understanding whether, and how, information can affect medical care use.

A number of case studies and evaluations of self-care programs have been published during the past two decades. Recent publications have built on past knowledge and have generally used larger samples, independent measures of health care use, and more rigorous research designs. This review of recent experimental and quasi-experimental studies of self-care education examines whether providing information can modify individuals' patterns of medical care utilization. Table 2 summarizes the three recent self-care education studies we will describe.

TABLE 5

RECENT SELF-CARE EDUCATION EXPERIMENTS

Reference	Study Population & Design	Strategies	Effects
Kemper, 1982	HMO members random assignment to program or control group	series of 10 2-hour workshop sessions informal format; active participation encouraged videotapes used for some instruction self-help guides distributed	55% of experimental group attended at least one session; average participation = 5.5/10 sessions small decrease in total visits by experimental group no decrease in total cost of clinic visits
Vickery et al., 1983	1,625 households from a Rhode Island HMO random assignment to 3 experimental and 1 control group	written materials, individual counseling, offer of telephone information service print materials = self care books, newsletter, brochures, self-scored health risk appraisal	significant decreases in total ambulatory care use for all experimental groups ($\bar{x}$ = 17%) greater decreases associated with individual counseling estimated cost savings exceeded program costs by more than 2:1 and 3:1 ratios
Lorig et al., 1985	5,200 employees in 22 California companies 8 cohorts; quasi-experimental staggered intervention design	group presentation self care books with algorithms to help decide whether or not to seek medical care	MD visit rates for families insured by Blue Cross were reduced by 17% average decreases in visits for all participants was 7.2% or 0.8 visits/year most effective for those with fee-for-service insurance; no reduction among HMO members

In a randomized experiment, Kemper (1982) invited health maintenance organization (HMO) members to attend a series of 10 two-hour workshop sessions led by a nurse practitioner. The goals of the workshops included skill building, peer reinforcement, and active participation to encourage members to use physician services only when medically necessary. Fifty-nine participants (55% of the experimental group) attended at least one session, and average participation was 5.5 sessions. Analysis of data for all experimental group subjects (including the non-attenders) showed that all participants increased their knowledge, but that only small nonsignificant decreases in total visits occcurred among the experimental group. The total cost of clinic visits did not decrease. One possible explanation for the failure of this program to produce the desired effects is that it was too long and achieved only low participation rates. In addition, there was no assessment of the necessity of clinic visits among participants.

Vickery et al. (1983) conducted a prospective randomized controlled trial of self-care education interventions in an HMO setting to reduce excessive use of ambulatory care services. They used a variety of written materials, written materials plus a telephone information service, and these services plus individual counseling in three experimental groups. The average household ambulatory care utilization decreased 17.2%, with the greatest decline in the group receiving individual counseling. Estimated cost savings greatly exceeded the program costs, by more than 2:1 and 3:1 ratios.

A quasi-experiment with 5,200 employees in 22 California companies was tested with a staggered intervention design using 8 cohorts, before/after comparisons, and statistical adjustment for seasonality and other intervening variables. The program included a group presentation and self-care books with algorithms to help decide whether or not it was necessary to seek medical care (the same type of books used in the abovementioned studies). Rates of physician visits for families insured by Blue Cross were reduced by 17%, and the average decrease in visits for all participants was 7.2%, or 0.8 visits per year. The program was differentially effective for households with different health care coverage: it was most effective for those with fee-for-service insurance; less so with co-payment insurance; and resulted in no change in utilization among HMO members (Lorig et al., 1985).

Based on findings from a number of studies of self-care education, Fleming et al. (1984) explored the hypothesis that self-care actions ultimately result in a true reduction in physician visits (rather than delaying needed care or stimulating additional symptom recognition). Secondary data analysis of a 1976 nationwide study on access to medical care suggested that self-care users visit physicians less often, stay fewer days in the hospital, and thus have lower expenditures for hospital and physician services. This finding is encouraging, but it remains difficult to know whether those programs which have reduced health care use have resulted in <u>appropriate</u> decisions not to seek care.

Self-care education programs most often appeal to well-educated individuals, but case studies show that they can be successfully implemented in a variety of populations (Green et al., 1977; Milio, 1977). In the Yale

University/Kellogg Foundation Self Care Project in four Connecticut communities the largest group of clients was well-educated, middle-class adults aged 30 to 55. However, project staff did recruit sizable populations of low income, minority clients as well (Caporael-Katz and Levin, 1987).

In summary, research regarding the effects of medical information in reducing utilization of health services suggests that these programs can modify use of health care in community settings. It is also likely that QCI programs following similar models can influence consumer choice of health providers. The most effective programs have used more than one medium for providing information. Written materials, group education sessions, and individual counseling can all influence voluntary participants in their decisionmaking regarding health matters. Special outreach efforts and tailoring of the information presented for various educational levels are necessary in order for these programs to reach lower SES and minority groups.

DISCUSSION: NON-USE BENEFITS OF INFORMATION

The main focus of this paper has been to assess the extent to which quality of care information is likely to influence consumer choice of physicians and hospitals. However, it is important to note that even if consumers do not benefit directly through choosing better quality health services, non-use benefits of QCI may also occur. Non-use benefits are those benefits of information provision that accrue to all consumers, regardless of whether or

not they acquire and use the information (Mayer, 1981). Providing quality of care information may indirectly benefit consumers by stimulating competition, improvement of services, and innovation in a number of ways (Mayer, 1981).

First, QCI provision may shift the basis of competition among health care providers to quality of care issues, . That is, some providers may realize that QCI reveals the quality of their service to be inferior. As providers adjust their allocation of resources to increase the quality of the care they provide, all consumers (not just those who acquire and use the quality of care information) may benefit (Padburg, 1977).

Second, provision of QCI may have the non-use benefit of inspiring consumer confidence in physicians and hospitals in general. Even those consumers who do not actively seek and process quality of care information tend to perceive such information provision as exerting discipline on the health care marketplace and increasing physician and hospital accountability (Padburg, 1977). In a nutrition information situation, an empirical test of the effect of providing nutrition information revealed that consumers developed more favorable attitudes toward food products for which more information was supplied as compared to those which supplied less (Freiden, 1981).

A third non-use benefit accrues because quality of care information provision may simplify the consumer's decision task. That is, under a well organized and proactive QCI provision system, consumers may feel that they do not have to seek information since such information has already been acquired and processed by regulators and/or consumer advocacy groups.

SUMMARY

While the assertion that informed consumers make better choices of health service providers has been advanced on the basis of opinion rather than empirical data, there is certainly no reason to believe that poorly informed or uninformed/ignorant consumers will make wise choices. It appears that quality of care information will become increasingly available to consumers, and the question is how to promote the most responsible and effective provision of that information.

This issue is in effect a "moving target," as the information strategies being used by advertisers, consumer groups, and government sources continue to outpace research to evaluate their effects (Fineberg, 1985). Further, the fragmentary and often marginal state of our knowledge is diluted by the diverse purposes, formats, information channels, and audiences addressed by those studying consumer healthcare decision making. While this review clearly indicates that there is no single definitive answer to the question of whether quality of care information influences consumer choice of physicians and hospitals, a number of tentative conclusions are in order. The following conclusions reflect the best currently available theory and data related to this question:

1. A significant proportion of health care use decisions are made by consumers themselves, with another substantial proportion made jointly with physicians. Women are most often the health care decision makers in families. Thus, primary care physicians and women may be primary targets for promoting the use of quality of care information.

2. It appears that most individuals do not actively seek out health care information. The cost of information-seeking may deter information acquisition behavior. This cost varies according to whether information is directed toward consumers, as with advertising, or merely available to consumers, as with malpractice disclosure or public interest consumer information.
3. Strong promotional efforts to encourage medical consumerism in the general public will help increase the effects of QCI on consumer choice of health care providers.
4. Studies of consumers' reasons for choosing and changing health providers indicate that consumers often rely on the recommendations of friends and relatives, due to the lack of information about quality of care, the difficulty of evaluating such information, and/or their belief that lay opinion is an adequate substitute for expert opinion.
5. The effectiveness of information in influencing consumer choices depends in part on the decision junctures when the information is provided. Consumers are most likely to be open to information when changing providers (i.e., doctor-shopping) or seeking new sources of care. Research indicates that "quality" is important to consumers (even in the absence of objective information on the quality of care). Thus, either continuous access to information on quality of care, or mechanisms for providing information when choices are to be made, would be in order.

6. The characteristics of the message, e.g., quality indicator content, positive or negative direction, and format, all influence its effectiveness. Simple formats are easiest for consumers to understand accurately and efficiently; however, careful attention to avoid misleading formats is also important. Research is needed to learn which indicators consumers find most useful.
7. QCI for consumers should include clear directions for interpreting the meaning of indicators.
8. Quality of care information can improve knowledge; however, improved knowledge alone may not be sufficient to influence behavior. People also need the motivation, skills, and peer or social support, to affect behavior change.
9. Studies of the effects of information-giving on health care use have achieved better results using combinations of media and interpersonal sources of information. Multiple media channels should be considered in providing information about quality of care.
10. The application of QCI would be enhanced and reinforced by providing information in settings where existing groups gather.
11. Information disseminated via newspapers and magazines, television, and physicians' offices is likely to reach a wide consumer audience with little additional consumer effort at a time when health care decisions are salient.
12. Consumers would probably benefit from information that is presented in a way that provides guidance on how to evaluate a particular type of service.

13. There are important non-use benefits of information that will accrue to all consumers and improve the quality of health care if QCI becomes widely available. These include shifting the thrust of competition to quality of care issues, increasing physician and hospital accountability to consumers, and simplifying the consumer's decision task.

14. There is a need for research regarding the effects of quality of care information for consumers. This research should apply perspectives drawn from several disciplines and use a variety of methodologies: policy reviews, consumer surveys, laboratory experiments, and field experiments in naturalistic environments. Some important foci for research include:

    a. Research to examine and develop consensus among health services researchers about the appropriate (representative, valid, and reliable) indicators of quality of care, and the best form for their use as consumer information.

    b. Research regarding what type of QCI consumers find most useful in making health care decisions.

    c. Tests of various formats for provision of consumer QCI.

    d. Controlled experimental studies of consumer QCI programs in workplace and community settings, to permit a better understanding of which components can achieve which types of effects in which audiences.

POLICY IMPLICATIONS

The rationale for government involvement in policy related to provision of consumer information on the quality of health care reflects the public role in several areas: social responsibility, consumer protection, consumer education (Gosfield, 1976), and the public investment in financing health care for many citizens. The policy implications suggested here reflect the need to balance current knowledge of whether information influences consumer choices with the questions of whether consumers desire information, whether its provision and accessibility to consumers are deemed desirable, and whether widespread information dissemination by proprietary interests warrants government attention.

1. In order for effective consumer use of quality of care information (QCI),
   a. QCI should be made widely and readily available;
   b. QCI should be presented so that it is not too technical or complicated for most consumers to use;
   c. QCI should include physician- and/or hospital-specific information;
   d. those who communicate QCI should provide explanations to help interpret the meaning of quality indicators; and
   e. the government should conduct aggressive, sustained publicity campaigns to educate consumers about how and where to obtain this information.
2. Two strategies are important to assure that QCI affects consumer decisions:
   a. programs to encourage consumers to ask questions and seek information; and

b. development of continuing education and resources for health care providers to enhance their willingness and ability to provide and help interpret QCI.

3. The government should coordinate existing information on quality of care and facilitate its accessibility and usability for consumers. This might be done collaboratively with the private sector and non-profit groups.
4. It is important to stimulate the wide provision of valid, reliable, and understandable quality of care information as a means of stimulating competition, innovation, and disclosure of henceforth unavailable information to consumers.
5. It is a legitimate, and even necessary, public role to assure that health care providers are what they appear to be (Donabedian, 1981). Regulation and monitoring of physician and hospital advertising to prevent misleading claims are much needed areas of public involvement. The creation and enforcement of standards for the use of quality of care data would also contribute to these efforts.
6. Health professionals and consumer groups should be encouraged to collaborate in designing optimal strategies for delivery of consumer information on quality of care, and aids to assist consumers in using the information.
7. Policy makers and public information specialists should consider the major sources of health information -- newspapers, magazines, television, and physicians -- as prime channels for mass dissemination of QCI and promotion of its use.

8. Strategies to provide appropriately tailored information to selected target groups (e.g., Medicare beneficiaries) should be developed and tested.
9. The government should support research in this area. There is a need for more empirical research at both the micro and macro levels to assess information acquisition, understanding, and use in various populations and for various purposes.

REFERENCES

American Hospital Association. "Guidelines -- Advertising by Hospitals." (Chicago: AHA, 1977).

Anderson, J.G., Bartkus, D., "Choice of Medical Care: A Behavioral Model of Health and Illness Behavior," J. Health and Soc. Behav. 14:348-362, 1973.

Bachman, S.S., Pomerantz, D., Tell, E., "Making Employers Smart Buyers of Health Care," Business and Health 4(9):28-34, 1987.

Bausell, R.B., "Peceived Quality of Hospital Care: Consensus Among Physicians, Nurses, and Consumers," Eval. and the Health Professions 8(4):401-405, 1985.

Becker, M.H., "Patient Adherence to Prescribed Therapies," Med. Care 23(5): 539-555, 1985.

Begun, J., Feldman, R., "A Social and Economic Analysis of Professional Regulation in Optometry." NCHSR Research Report Series, PHS 81-235, April 1981.

Belk, R.W., "A Modest Proposal for Creating Verisimilitude in Consumer Information Processing Models and Some Suggestions for Establishing a Discipline to Study Consumer Behavior," Philosophical and Radical Thought in Marketing, Bagozzi, R., Dholakia, N., and Firat, A.F., eds. (in press, 1987).

Belsky, M.S., Gross, L., Beyond the Medical Mystique: How to Choose and Use Your Doctor (New York: Priam Books, 1975).

Benham, L., "The Effects of Advertising on the Price of Eyeglasses," Journal of Law and Economics, pp. 337-352, 1972.

Bennett, D., Campbell, K., "Most Consumers Show Little Concern in Selecting Health-Services Providers," Marketing News 20(7):14, 1986 (August 15).

Bettman, J.R., An Information Processing Theory of Consumer Choice (Reading, Mass.: Addison-Wesley, 1979).

Book, D.S., Stockton, H.J., "Why Patients Choose a Particular Dentist," Can. Dent. Assoc. J. 52(2):123-126, 1986.

Brook, R.H., Avery, A.D., Quality Assessment: Issues of Definition and Measurement (Santa Monica, CA: The Rand Corporation, 1976).

Bunker, J.P., Brown, B.W., "The Physician-Patient as an Informed Consumer of Surgical Services," New Engl. J. Med. 290(19):1051-1055, 1974.

Caporeal-Katz, B., Levin, L., "Self-Care Education," The Handbook of Health Education, 2nd ed., Lazes, P.M., Kaplan, L.H., Gordon, K.A., Eds. (Rockville, Md.: Aspen Publishers, 1987), pp. 189-207.

Cartwright, A., Patients and Their Doctors (London: Routledge and Kegan Paul, 1967).

Cassileth, B.R., Zupkis, R.V., Sutton-Smith, K., March, V., "Informed Consent: Why Are Its Goals Imperfectly Realized?" N. Engl. J. Med. 302:896-900, 1980.

Charles, J.G., "Using Informed Choice to Combat Health Costs," Business and Health 4(9):36-38, 1987.

Christensen, D.B., Wertheimer, A.I., "Consumer Action in Health Care," Public Health Reports 91(5):406-411, 1976.

Christensen-Szalanski, J.J.J., Boyce, W.T., Harrell, H., Gardner, M.M., "Circumcision and Informed Consent: Is More Information Always Better?" Med Care 25(9):856-867, 1987.

Clark, N., Gross, E., Barkel, J., "Patient Consent in Seven Medical Care Institutions," Patient Couns. and Health Educ. 4:103-110, 1982.

Colburn, D., "Shopping for Hospital Care," Washington Post, p. D7, Nov. 14, 1984.

Congress (99th), "Health Care Quality Improvement Act of 1986," Public Law 99-660, Nov. 14, 1986. Omnibus Health Bill, Title IV--Encouraging Good Faith Professional Review Activities.

Consumer Checkbook, "Hospitals," Consumer Checkbook 6(3):13-27, Fall 1987.

Cornacchia, H.J., Barrett, S., Consumer Health: A Guide to Intelligent Decisions (2nd ed.) (St. Louis: C.V. Mosby, 1980).

Donabedian, A., "Promoting Quality Through Evaluating the Process of Patient Care," Med. Care 6:181-202, 1968.

Donabedian, A., Explorations in Quality Assessment and Monitoring, Vol. 1: The Definition of Quality and Approaches to Its Measurement (Ann Arbor: University of Michigan Health Administration Press, 1980).

Donabedian, A., "Perspectives on the Free Choice of the Source of Personal Health Care," Milbank Mem. Fund Qtly. 59(4):586-595, 1981.

Donabedian, A., "Twenty Years of Research on the Quality of Medical Care: 1964-1984," Eval. and the Health Professions 8(3):243-265, 1985.

Doyle, B.J., Ware, J.E., "Physician Conduct and Other Factors that Affect Consumer Satisfaction With Medical Care," J. Med. Educ. 52:793-801, 1977.

Ernst, N.D., Wu, M., Frommer, P., et al., "Nutrition Education at the Point of Purchase: The Foods For Health Project Evaluated," Prev. Med. 15:60-73, 1986.

Farrell, K., "Alternative Health Plans: Informing the Medicare Consumer," paper presented at American Public Health Association Annual Meetings, Las Vegas, September 1986.

Festinger, L., "A Theory of Social Comparison Processes," Human Relations 1:117-140, 1954.

Fielding, J.E., Corporate Health Management (Reading, Mass.: Addison-Wesley, 1984).

Fineberg, H.V., "Technology Assessment: Motivation, Capability, and Future Directions," Med. Care 23(5):663-671, 1985.

Fleming, G.V., Giachello, A.L., Andersen, R.M., Andrade, P., "Self-Care: Substitute, Supplement, or Stimulus for Formal Medical Services?" Med. Care 22(10):950-966, 1984.

Flexner, W.A., Marketing Research and Health Care: Concepts and Techniques Applied to Abortion Service Design (New York: Neal Watson Academic Publications, Inc., 1978).

Folland, S.T., "The Effects of Health Care Advertising," Journal of Health Politics, Policy and Law 10:329-345, 1985.

Food and Drug Administration (FDA), "Cholesterol Labeling in the Retail Processed Food Supply: 1986," Food Label and Package Survey, Division of Consumer Studies, FDA, 1986.

Freiden, J.B., "The Effect of Nutrition Information on Brand Rating: Test for a Non-Use Benefit," Journal of Consumer Affairs 15(1):106-113, 1981.

Freidson, E., Patients' Views of Medical Practice (New York: Russell Sage Foundation, 1961).

Freidson, E., Professional Dominance: The Social Structure of Medical Care (New York: Atherton Press, Inc., 1970).

Freimuth, V.A., Marron, T., "The Public's Use of Health Information," Health Educ. 9(4):18-20, 1978.

Gallup Organization, Inc., Public Attitudes Toward Health Care and Health Care Attitudes (Princeton, NJ: Gallup, 1978).

Gardner, H.H., "Putting Health Care Decisions in the Hands of Consumers," Business and Health 3(10):22-23, 26, 1986.

General Mills, Inc., "Family Health in an Era of Stress: The General Mills Family Report 1978-1979," Minneapolis, MN, 1979.

Glanz, K., "Nutrition Education for Risk Factor Reduction and Patient Education: A Review," Preventive Medicine 14:721-752, 1985.

Glanz, K., Mullis, R.M., "Environmental Interventions to Promote Healthy Eating: A Review of Models, Programs, and Evidence," submitted to Health Education Quarterly, 1987.

Glassman, M., Glassman, N., "A Marketing Analysis of Physician Selection and Patient Satisfaction," J. Health Care Mktg. 1(4):25-31, 1981.

Gochman, D.S., Stukenborg, G.J., Feler, A., "The Ideal Physician: Implications for Contemporary Hospital Marketing," Journal of Health Care Marketing 6(2):17-25, 1986.

Gombeski, W.R., Ramirez, A.G., Kautz, J.A., et al., "Communicating Health Information to Urban Mexican Americans: Sources of Health Information," Health Educ. Qtly., 9(4):293-309, 1982.

Gosfield, A.G., "Approaches of the Federal Health Agencies to Patients' Rights and Consumer Participation," Publ. Health Reports 91(5):403-405, 1976.

Green. L.W., Werlin, S.H., Schauffler, H.H., Avery, C.H., "Research and Demonstration Issues in Self-Care: Measuring the Decline of Medicocentrism," Health Educ. Monogr. 5:161-189, 1977.

Greenberg, B., Dervin, B., "Mass Communication Among the Urban Poor," Public Opinion Qtly 34:224-235, 1970.

Greenberg, W., "Health Care Information in Medical Marketplace Reform," Business and Health 1:21-23, 1984.

Greenberg, W., "The Healthcare Market: Information on Quality Will Fuel Competition," HealthSpan 3(1):6-9, 1986.

Greene, S.B., Gillings, D.B., Salber, E.J., "Who Shops for Medical Care in a Southern Rural Community--How Much and Why," Inquiry 16(1):62-72, 1979.

Greenfield, S., Kaplan, S., Ware, J.E., "Expanding Patient Involvement in Care: The Effects on Patient Outcomes," Annals of Int. Med. 102:520-528, 1985.

Grunder, T.M., "On the Readability of Surgical Consent Forms," N. Engl. J. Med. 302:900, 1980.

Haddad, K. (Medical Writer, NY's Capital Newspapers, Albany), personal communication to Mr. Peter Slocum, Director of Public Affairs, N.Y. State Health Department, July 13, 1987.

Haines, G.H., "Process Models of Consumer Decision Making," Buyer/Consumer Information Processing, Hughes, G.D., and Ray, M.L., Eds. (Chapel Hill: University of North Carolina Press, 1974), pp. 89-107.

Hamilton, J., "The Best Hospitals For Every Ailment," Family Circle, October 20, 1987, pp. 36, 38-40, 133-134, 152.

Hamilton, P.A., Health Care Consumerism (St. Louis: C.V. Mosby, 1982).

Louis Harris and Associates, "What New Yorkers Say About Their Health Care," 1985.

Haug, M., Lavin, B., "Public Challenge of Physician Authority," Med. Care 17:844-858, 1979.

Haug, M., Lavin, B., Consumerism in Medicine: Challenging Physician Authority (Beverly Hills: Sage Publishing Co., 1983).

Hauser, L.J., "Quality of Care: A Future Element of Advertising," Hospitals 60(14):54 (July 20), 1986.

Haynes, R.B., "Strategies to Improve Compliance With Referrals, Appointments, and Prescribed Medical Regimens," Compliance in Health Care, Haynes, R.B., Taylor, D.W., Sackett, D.L., Eds. (Baltimore: The Johns Hopkins University Press, 1979), pp. 121-143.

Heimbach, J.T., "Defining the Problem: The Scope of Consumer Concern With Food Labeling," Advances in Consumer Research, Vol. 8, Monroe, K.B., Ed. (Ann Arbor: Association for Consumer Research), pp. 474-478, 1981.

Heimbach, J.T., "The Growing Impact of Sodium Labeling," Paper presented at the 46th Annual Meeting of the Institute of Food Technologists, Dallas, June 1986.

Hibbard, J.H., Weeks, E.C., "Consumerism in Health Care: Prevalence and Predictors," Med. Care 11:1019-1032, 1987a.

Hibbard, J.H., Weeks, E.C., "Consumers in a Competition-Based Cost Containment Environment," under review, Social Science and Medicine, 1987b.

Hochbaum, G., "Strategies and Their Rationale for Changing People's Eating Habits," J. Nutr. Educ. 13(Suppl.):59-65, 1981.

Howard, J.A., Sheth, J.N., The Theory of Buyer Behavior (New York: Wiley, 1969).

Hulka, B.S., Kupper, L.L., Cassel, J.C., Babineau, R.A., "Practice Characteristics and Quality of Primary Medical Care: The Doctor-Patient Relationship," Med. Care 13(10):808-820, 1975.

Inguanzo, J.M., Damier, B., "Consumer Expectations on the Rise: 1984-1986 Data," Trustee, July 1987.

Inguanzo, J.M., Harju, M., "What Makes Consumers Select a Hospital?" Hospitals 59(4):90, 92, 94, March 16, 1985a.

Inguanzo, J.M., Harju, M., "Affluent Consumers Most Discriminating: Survey," Hospitals 59(19):84, 86, October 1, 1985b.

Inlander, C.B., "Consumers Can Put Health Care Data to Good Use," Business and Health 4(7):26-27, 1987.

Jacoby, J., Chestnut, R.W., Silberman, W., "Consumer Use and Comprehension of Nutrition Information," Journal of Consumer Research 4:119-128, 1977.

Jensen, J., "Choosing a Hospital," Amer. Demographics, June 1987, pp. 44-47.

Kahn, P., "Food Labeling: More or Better?" Food, Drug, Cosmetic Law Journal 35(3):160-169, 1980.

Kahneman, D., Attention and Effort (Englewood Cliffs, N.J.: Prentice-Hall, 1973).

Kasteler, J.., Kane, R.L., Olsen, D.M., Thetford, C., "Issues Underlying Prevalence of 'Doctor-Shopping' Behavior," J. Health and Soc. Behav. 17(4):329-339, 1976.

Kelley, H.H., "Causal Schemata and the Attribution Process," Attribution: Perceiving the Causes of Behavior, Jones, E.E., et al., Eds. (Morristown, N.J.: General Learning Press, 1971), pp. 151-174.

Kelman, H.R., "Evaluation of Health Care Quality by Consumers," Intl. J. Health Svcs. 6(3):431-442, 1976.

Kemper, D.W., "Self-Care Education: Impact on HMO Costs," Med. Care 20(7): 710-718, 1982.

Komaroff, A.L., "Quality Assurance in 1984," Med. Care 23(5):723-734, 1985.

Lebow, L.J., "Consumer Assessments of the Quality of Medical Care," Med. Care, 12(4):328-337, 1974.

LeFebre, M., Zweig, S., Kruse, J., "Selection of a Physician for Prenatal Care," J. Fam. Pract. 24(3):275-279, 1987.

LeMaitre, G.D., How To Choose a Good Doctor (Andover, Mass.: Andover Publishing Group, 1979).

Levin, L., personal communication, 1987.

Levin, L., Idler, E.L., The Hidden Health Care System: Mediating Structures and Medicine (Cambridge, Mass.: Ballinger Publ. Co., 1981).

Levin, L., Katz, A., Holst, E., Self-Care: Lay Initiatives in Health (New York: Prodist, 1976).

Levitt, T., "Marketing Intangible Products and Product Intangibles," Harvard Business Review 59(3):94-102, 1981.

Levy, A.S., Matthews, O., Stephenson, M., et al., "The Impact of a Nutrition Information Program on Food Purchases," J. Food Policy and Mktg. 4:1-13, 1984.

Ley, P., Spelman, M.S., Communicating With the Patient (London: Staples Press, 1967).

Liefeld, J.P., Nutrition Labelling and Consumer Behavior: A Review of the Evidence (Ottawa: Health and Welfare Canada, 1983).

Lorig, K., Kraines, R.G., Brown, B.W., Richardson, N., "A Workplace Health Education Program That Reduces Outpatient Visits," Med. Care 23(9): 1044-1054, 1985.

MacStravic, R.S., Marketing Health Care (Germantown, Md.: Aspen Systems Corporation, 1977).

MacStravic, R.S., "Word-of-Mouth Communications In Health Care Marketing," Health Progress 66(8):25-29, 1985.

Madnick, M.E., Consumer Health Education: A Guide to Hospital-Based Programs (Wakefield, Mass.: Nursing Resources, 1980).

Markin, R.J., Consumer Behavior: A Cognitive Orientation (New York: Macmillan, 1974).

Marquis, M.S., Kanouse, D.E., Brodsley, L., Informing Consumers About Health Care Costs: A Review and Research Agenda (Santa Monica, Cal.: Rand Corporation, September 1985).

Mayer, R.N., "How Information Disclosure Reforms Benefit Non-Users of Consumer Information: A Review," Proceedings of the Annual Conference of the American Council on Consumer Interests, Meeks, C.B., Ed., Ed. (Columbia, Mo.: American Council on Consumer Interests), pp. 129-133, 1981.

McCosker, M. (Private HealthCare Systems, Lexington, Mass.), Personal Communication, October 9, 1987.

McKinlay, J.B., "Who is Really Ignorant--Physician or Patient?" J. Health and Soc. Behav. 13:115-152, 1975.

Mechanic, D., "Health, Health Maintenance, and Health Education," Politics, Medicine, and Social Science (New York: John Wiley & Sons, 1974), pp. 261-270.

Metsch, J.M., Veney, J.E., "Consumer Participation and Social Accountability," Med. Care. 14(4):283-293, 1976.

Meyers, A.R., "'Lumping It:' The Hidden Denominator of the Medical Malpractice Crisis," Amer. J. Publ. Health 77(12):1544-1548, 1987.

Milio, N., "Self-Care in Urban Settings," Health Educ. Monogr. 5(2):289-298, 1977.

Mohr, K.G., Wyse, B.W., Hansen, R.G., "Aiding Consumer Nutrition Decisions: Comparison of a Graphical Nutrient Density Labeling Format with the Current Food Labeling System," Home Economics Research Journal 8(3):162-172, 1980.

Monroe, K.B., Krishnan, R., "The Effect of Price on Subjective Product Evaluation," Consumers of Merchandise and Store Quality, Jacoby, J., Olson, J., Eds. (Lexington, Mass.: D.C. Heath, 1984).

Mosteller, F., "Assessing Quality of Institutional Care," Amer. J. Publ. Health 77(9):1155-1156, 1987.

Muller, T.E., "The Use of Nutritive Composition Data at the Point of Purchase," Journal of Nutrition Education 16:137-141, 1984.

Muss, H.B., White, D.R., Michielute, R., et al., "Written Informed Consent in Patients With Breast Cancer," Cancer 43:1549, 1979.

National Heart and Lung Institute, "The Public and High Blood Pressure," Louis Harris and Associates, Inc., November 1978.

Newhouse, J.P., Ware, J.E., Donald, C.A. "How Sophisticated are Consumers About the Medical Delivery System?" Med. Care 19(3):316-328, 1981.

O'Shea, R.M., Corah, N.L., Ayer, W.A., "Why Patients Change Dentists: Practitioners' Views," J. Amer. Dent. Assoc. 112(6):851-854, 1986.

Pacific Mutual Life Insurance Company, "Health Maintenance Survey," Louis Harris and Associates, Inc., June 1973.

Padburg, D.I., "Non-Use Benefits of Mandatory Consumer Information Programs," Journal of Consumer Policy 1(1):5-14, 1977.

Pauly, M.V., "Is Medical Care Different? Competition in the Health Care Sector: Past, Present, Future," Issues in Health Economics, 1982.

Pekannen, J., "How To Choose a Doctor: Advice From the Experts on Making the Right Choice," The Washingtonian 23(1):122, October 1987[a].

Pekannen, J., "Good Family Doctors," The Washingtonian 23(1):115-116, 118, 120, October 1987[b].

People's Medical Society, "How to Choose A Doctor," Emmaus, Pa., 1987, bulletin.

Powills, S., "Consumers Ask MDs to Select Hospitals," Hospitals 60(5):68, 70, March 5, 1986.

Powills, S., "Who's Making Health Care Decisions?" Hospitals, August 5, 1987, p. 40.

Pratt, L., Seligman, A., Reader, G., "Physicians' Views on the Level of Medical Information Among Patients," Amer. J. Public Health 47:1277-1283, 1957.

President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, Making Health Care Decisions, Vol. I, Report (Washington, D.C.: U.S. Govt. Printing Ofc., 1982[a]).

President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, Making Health Care Decisions, Vol. II, Appendices, Empirical Studies of Informed Consent (Washington, D.C.: U.S. Govt. Printing Ofc., 1982[b]).

"Psychographics Help Health Marketers Find and Serve New Market Segments," Marketing News 21(9):4-5, 1987 (April 24).

Reader, G.G., Pratt, L., Mudd, M.C., "What Patients Expect From Their Doctors," Modern Hospital 89:88-94, 1957.

Reeder, L.G., "The Patient-Client as a Consumer: Some Observations on the Changing Professional-Client Relationship," J. Health and Soc. Behav. 13:406-412, 1972.

Rees, A.M., Young, B.A., The Consumer Health Information Source Book (New York: R.R. Bowker Company, 1981).

Riley, J.N., "Client Choices Among Osteopaths and Ordinary Physicians in a Michigan Community," Soc. Sci. Med. 14(2):111-120, 1980.

Rimer, B., Jones, W.L., Keintz, M.K., et al., "Informed Consent: A Crucial Step in Cancer Patient Education," Health Educ. Qtly. 10(Suppl.):30-42, 1984.

Rodale, R., "The Evaluation of the Quality of Health Care: A Lay Perspective," Eval. and the Health Professionas 6(2):143-148, 1983.

Rogers, E.M., Shoemaker, F.F., Communications of Innovations: A Cross-Cultural Approach, 2nd ed. (New York: John Wiley & Sonss, 1971).

Roter, D.L., "Patient Participation in the Patient-Provider Interaction: The Effects of Patient Question Asking on the Quality of Interaction, Satisfaction, and Compliance," Health Educ. Monogr. 5(4), 1977.

Rovner, S., "The Elderly, Flexing Their Medical Muscle," Washington Post, Health Section, p. 8, March 12, 1986.

Rudd, J., "Aiding Consumer Nutrition Decisions with the Simple Graphic Label Format," Home Economics Research Journal 14(3):341-346, 1986.

Rudd, J., Kohout, F.J., "Individual and Group Consumer Information Acquisition in Brand Choice Situations," Journal of Consumer Research 10:303-309, 1983.

Rudd, J., Turner, N.F., "Misleading Consumers With the Graphic Nutrient Density Food Label," Proceedings of the 29th Annual Conference of the American Council on Consumer Interests, Goebel, K.P., Ed. (Columbia, Mo: ACCI, 1983), pp. 58-62.

Rundle, R.L., "Hospitals Cite Mortality Statistics in Ads to Attract Heart Patients," Wall Street Journal, July 28, 1987.

Russo, J.E., "Information Processing From the Consumer's Perspective," Research at the Frontier: Proceedings of the International Conference on Research in the Consumer Interest, Maines, E.S., Ed. (Columbia, Mo.: Association for Consumer Research), in press, 1987.

Russo, J.E., Stallis, R., Nolan, C.A., Russell, G.J., Metcalf, B.L., "Nutrition Information in the Supermarket," Journal of Consumer Research 13:48-70, 1986.

Sehnert, K.W., Eisenberg, H., How to be Your Own Doctor (Sometimes) (New York: Grosset and Dunlap, 1975).

Shugan, S.M., "Price-Quality Relationships," Advances in Consumer Research, Vol. 11, Kinnear, T., Ed. (Ann Arbor, Mich.: Association for Consumer Research, 1984).

Sproles, G.B., "New Evidence on Price and Product Quality," Journal of Consumer Affairs 11:63-77, 1977.

Stewart, D.W., Hickson, G.B., Ratneshwar, S., et al., "Information Search and Decision Strategies among Health-Care Consumers," Advances in Consumer Research 12:252-257, 1985.

Stratmann, W.C., "A Study of Consumer Attitudes About Health Care: The Delivery of Ambulatory Services," Med. Care 8:537-548, 1975.

Strull, W.M., Lo, B., Charles, G., "Do Patients Want to Participate in Medical Decision Making?" J. Amer. Med. Assoc. 252(21):2990-2994, 1984.

Swartz, T.A., Stephens, N., "Information Search for Services: The Maturity Segment," Advances in Consumer Research, Vol. 11, Kinnear, T.C., Ed. (Provo, Utah: Association for Consumer Research, 1984), pp. 627-632.

Summers, S.J., "Maryland's Experiment With Quality Measures," Business and Health 5(1):14-16, 1987.

Thorelli, H.G., Engledow, J., "Information Seekers and Information Systems: A Policy Perspective," Journal of Marketing 44:9-27, 1980.

Uhl, K., Upah, G.D., "The Marketing of Services: Why and How is it Different?" Research in Marketing 6:231-357, 1983.

U.S. Department of Agriculture (USDA) and U.S. Department of Health and Human Services (DHHS), "Design and Evaluation of Nutrition Label Formats: Information Kit" (Washington, D.C.: USDA/DHHS, December 2, 1982).

VanDoren, D.C., Smith, L.W., "Physician Marketing in the Restructured Medical Services Field," J. of Health Care Marketing 7(3):7-14, 1987.

Vickery, D.M., Fries, J.F., Take Care of Yourself: A Consumer's Guide to Medical Care (Reading, Mass.: Addison-Wesley, 1976).

Vickery, D.M., Kalmers, H., Lowry, D., et al., "Effect of a Self-Care Education Program on Medical Visits," J. Amer. Med. Assoc., 250(21):2952-2956, 1983.

Wade, S., Schramm, W., "The Mass Media as Sources of Public Affairs, Science, and Health Knowledge," Public Opinion Qtly. 33:197-209, 1964.

Waitzkin, H.B., Stoeckle, J., "Information Control and the Micro-Politics of Health Care: Summary of an Ongoing Research Project," Soc. Sci. Med. 10:263-276, 1976.

Ware, J.E., Snyder, M.K., "Dimensions of Patient Attitudes Regarding Doctors and Medical Care Services," Med. Care 8:669-682, 1975.

Wennberg, J.E., Barnes, B.A., Zubkoff, M., "Professional Uncertainty and the Problem of Supplier-Induced Demand," Soc. Sci. and Med. 16:811-824, 1982.

Wilkie, W.L., Consumer Behavior (New York: Wiley, 1986).

Wolinsky, F.D., Steiber, S.R., "Salient Issues in Choosing a New Doctor," Soc. Sci. Med. 16(7):759-767, 1982.

Woodside, A.G., "Advertisers' Willingness to Substantiate Their Claims," J. of Consumer Affairs 11(1):136-144, 1977.

Wotruba, T.R., Haas, R.W., Oulhen, H., "Marketing Factors Affecting Physician Choice as Related to Consumers' Extent of Use and Predisposition Toward Use of Physician Services," J. Health Care Marketing 5(4):7-17, 1985.

Wyden, R., "A Crusade for Access to Health Care Data," Business and Health 3(12):35-38, 1986.

Wyzewianski, L., Wheeler, J.R., Donabedian, A., "Market-Oriented Cost-Containment Strategies and Quality of Care," Milbank Mem. Fund Qtly. 60(4):518-550, 1982.

Zyzanski, S., Hulka, B., Cassel, J., "Scale for the Measurement of Satisfaction With Medical Care," Med. Care 12 (7):611-620, 1974.